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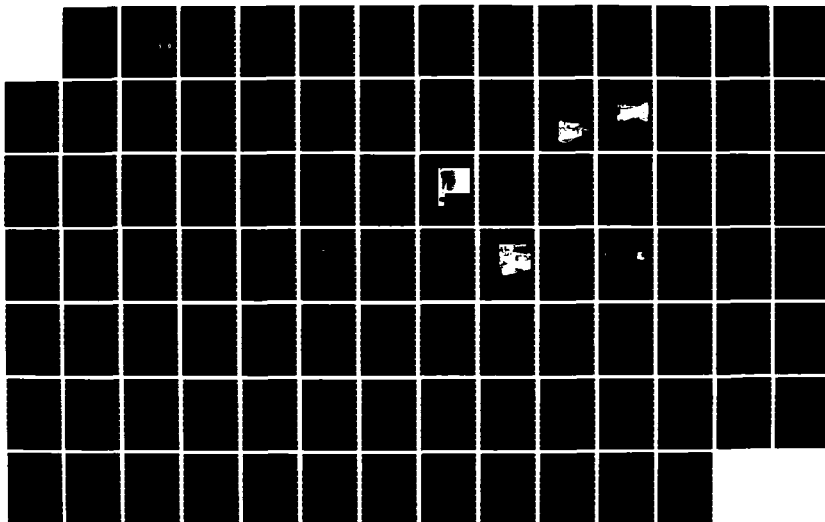
HAZARDOUS WASTE: DOD'S EFFORTS TO IMPROVE MANAGEMENT OF
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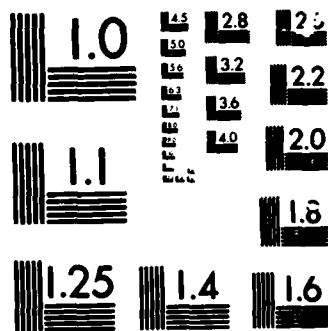
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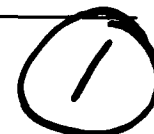
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GAO

United States General Accounting Office
Report to the Congress



May 1986

HAZARDOUS WASTE

DOD's Efforts to Improve Management of Generation, Storage, and Disposal

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United States
General Accounting Office
Washington, D.C. 20548

Comptroller General
of the United States

B-213706

May 19, 1986

To the President of the Senate and the
Speaker of the House of Representatives

This report describes the Department of Defense's efforts to manage hazardous waste generation, storage, and disposal at its installations in the United States. We made the review to determine if the Department's hazardous waste program complied with the Resource Conservation and Recovery Act. In a draft of this report we proposed implementation of a policy to correct some of the deficiencies in compliance we identified. The Department has now adopted that policy and is working on developing implementing guidance for the services. We are sending this report to you to assist you in your ongoing oversight of the Department's compliance with the Act.

We are sending copies of this report to the Director, Office of Management and Budget, and the Secretary of Defense.

Charles A. Bowsher

Charles A. Bowsher
Comptroller General
of the United States

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Executive Summary

Hazardous waste can seep into water supplies, contaminate land, and escape into the air, thereby posing potential threats to the environment or adverse health effects. The Department of Defense (DOD) generates over 500,000 tons of hazardous waste annually at 333 installations in the United States. The Resource Conservation and Recovery Act of 1976 regulates management of hazardous waste. In response to congressional interest in DOD's compliance with the law, GAO reviewed the

- extent to which selected DOD installations are meeting the Act's requirements,
- effectiveness of the Defense Logistics Agency (DLA) in disposing of waste and constructing storage facilities, and
- progress being made in reducing the volume of hazardous waste requiring disposal.

Background

Under DOD policy, installation commanders have responsibility for assuring that installation activities comply with the Act. DLA through its Defense Reutilization and Marketing Service has responsibility for assisting the commanders by disposing of certain hazardous wastes and constructing necessary storage facilities.

Also under DOD policy, all units are to reduce the volume of hazardous waste requiring disposal in landfills to avoid future liability for landfill cleanup. Plans to reduce the volume of waste include treating it so that only a small amount of residue remains hazardous and requires disposal. Among the methods of treatment used by DOD are processing wastes through industrial waste treatment plants and recycling.

Results in Brief

DOD installations have made progress toward coming into compliance with the Act's requirements since the Environmental Protection Agency published its implementing regulations in May 1980. However, many installations have yet to achieve full compliance for a number of reasons, including the inability of DLA to dispose of hazardous waste and construct storage facilities in a timely manner. In addition, DOD could do more to reduce the volume of waste requiring disposal.

During GAO's review, DOD took actions to address the situations described above. The major action was a policy change that emphasizes that the services, their commands, and installation commanders have maximum authority and flexibility to achieve compliance with the Act.

DOD also adopted a policy requiring audits of installation compliance, and plans to change its environmental management information system so it can measure the success of the services in carrying out DOD policies and programs. These actions should provide DOD with the ability to conduct necessary oversight concerning compliance.

Principal Findings

Compliance With the Act

Twelve of 14 installations GAO visited had been cited for at least one violation of the Act in 1984. Officials in the seven states where the 14 installations were located, considered 41 of the 75 DOD installations they inspected to be out of compliance with the Act. Also, Navy audits show 90 percent of Navy hazardous waste generators examined were not in compliance. DOD's Environmental Directorate generally was unaware of the compliance status of the installations. (See pp. 18 to 29.)

Disposal of Waste by DLA

In 1980 DLA was assigned responsibility for providing disposal service to all installations and did so by 1984. However, at the time of GAO's visits, much of the hazardous waste generated was stored for long periods of time because contractors did not pick it up in a timely manner, contractors defaulted on their contracts, and delivery orders were not issued in a timely manner.

To prevent operational shutdowns and regulatory violations, some installations contracted for disposal on their own rather than rely on DLA. DLA officials attribute untimely and unreliable service to inadequate staff. DLA plans to improve disposal services but additional staff will be required. (See pp. 30 to 43.)

DLA Storage Facilities

DLA determined that it needed to construct 143 hazardous wastes storage facilities costing about \$63 million. As of February 28, 1985, 12 of the facilities were constructed, and 13 were under construction. The remaining 118 facilities are scheduled for completion by the end of fiscal year 1989. However, DLA may not be able to meet this schedule because of the need to reevaluate the design of some facilities and to incorporate recent DLA directed design changes in others.

DLA has not met the needs of DOD installations which are storing most of their hazardous waste. Rather than waiting for DLA facilities, some installations built new storage facilities, with more planned. This is being done to bring installations into compliance with the Act's requirements as quickly as possible. (See pp. 45 to 53.)

Reducing the Volume of Waste

Most installations GAO visited had waste treatment plants, and, with few exceptions, these plants had unused capacity. At the same time, four of these installations were contracting for disposal of wastes similar to those being treated. With equipment modifications, these wastes could be processed at the treatment plants, thus reducing waste disposal and saving as much as \$127,000 in disposal costs in the first year and up to \$276,000 annually thereafter.

In January 1984, DOD established a program to recycle solvents. GAO found that 4 of 14 installations recycled about 490,000 gallons of solvents in 1984—about one-half of the amount that could have been recycled. The recycling efforts identified were operational prior to the start of the January 1984 program. Each of the services plan to have their program to recycle solvents fully operational at the larger waste generators before October 1, 1986. (See pp. 54 to 63.)

Agency Comments and GAO Evaluation

DOD believes, and GAO concurs, that the new policy responds to the intent of the GAO proposals contained in a draft of this report to bring together, within the services, the authority and responsibility for compliance with the Act. DOD is exploring several issues it believes must be resolved before issuing guidance to implement the new policy. GAO believes that these issues need to be resolved in a manner consistent with the policy emphasis of giving the services and their commands maximum authority and flexibility to comply with environmental laws. (See pp. 41 and 42.)

Recommendation

GAO recommends that the Secretary of Defense monitor the implementation of the new policy to assure that in practice it succeeds in providing the services, commands, and installations with the authority and flexibility needed to accomplish DOD's goals and the requirements of the Act with regard to the generation, storage, and disposal of hazardous waste. (See p. 63.)

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Abbreviations

DLA	Defense Logistics Agency
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
DRMS	Defense Reutilization and Marketing Service
EPA	Environmental Protection Agency
GAO	General Accounting Office
RCRA	Resource Conservation and Recovery Act of 1976
USE	Used Solvent Elimination

Introduction

Hazardous waste, if disposed of improperly, can present potential dangers to environmental quality and human health. If improperly controlled, such waste can pollute valuable ground and surface waters, contaminate soil, and be released into the atmosphere. The effects of such environmental contamination threaten natural resources and endanger public health.

Hazardous wastes can be in the form of solids, liquids, sludges, or contained gases. A hazardous waste may be ignitable, corrosive, reactive, and/or toxic. Ignitable wastes catch fire easily. Corrosive wastes eat away materials and living tissue by chemical action. Reactive wastes may react spontaneously or vigorously with air or water, be unstable to shock or heat, generate toxic gases, or explode. Toxic wastes are poisonous to living beings.

DOD Is a Large Generator of Hazardous Waste

Department of Defense (DOD) records show that it generated over 530,000 tons of hazardous waste at installations in the United States during 1984. DOD records show that 333 of its 888 installations in the United States produced hazardous waste in 1984. The types of hazardous waste that may be found at these installations include, among others, the following.

- solvents
- alkalies
- paints
- munitions
- polychlorinated biphenyls (PCB)
- contaminated sludges
- acids
- metals
- cyanides
- fuel and oil
- decontaminating agents
- phenols

Various types of operations performed at DOD installations use many products that, when discarded, become hazardous waste. In some instances, DOD has industrial-type manufacturing operations to repair, overhaul, and/or rebuild major items, including combat tanks, aircraft, aircraft engines, and naval vessels. Other operations that can generate hazardous waste and are frequently found at DOD installations include

vehicle motor pools, paint shops, fire departments, hospitals and medical clinics, and laundries. Hazardous waste is usually a by-product of activities such as cleaning, degreasing, stripping, painting, or metal plating.

DOD Is Required to Comply With the Resource Conservation and Recovery Act

In 1976 the Congress enacted the Resource Conservation and Recovery Act (RCRA) which provides for regulatory controls over the generation, transportation, treatment, storage, and disposal of hazardous wastes. One objective of RCRA was to regulate the management of hazardous waste and improve waste disposal practices. DOD, being a generator¹ of hazardous waste and an operator of treatment, storage, and disposal facilities, must comply with RCRA requirements. Generally, DOD considers each installation to be a separate entity for regulatory purposes.

The Environmental Protection Agency (EPA) has primary responsibility under RCRA for regulating the management of hazardous waste and monitoring compliance. EPA regulations, initially published in May 1980, govern hazardous waste generators as well as owners and operators of hazardous waste treatment, storage, and disposal facilities. Throughout this report we refer to EPA regulations as RCRA requirements or regulations.

In implementing RCRA, EPA established regulations for reporting, record-keeping, performance, and facility operations for hazardous waste handlers. RCRA requires that any person² owning or operating a facility where hazardous waste is treated, stored, or disposed of must obtain a permit. In 1984, 320 of DOD's 333 hazardous waste producing installations were required to obtain a permit and comply with EPA's regulations for treatment, storage, and disposal facilities. Of these installations, 295 are operating under interim status and 25 have final permits.³ The other 13 installations were not required to obtain a permit because they did not treat, store, or dispose of hazardous waste on-site. They were, however, required to comply with EPA's generator regulations, including

¹A generator is an individual or organization whose act or process produces hazardous waste.

²EPA regulations define person as an individual, firm, corporation, federal agency, partnership, state, municipality, etc.

³Interim status is a category of regulatory requirements established under RCRA for facilities that were in operation or under construction on or before November 19, 1980, and are less comprehensive than those applicable to facilities with final permits. Under the 1984 amendments to RCRA, facilities were required to certify compliance with interim status groundwater monitoring and financial assurance requirements and submit final permit applications by November 8, 1985.

obtaining an EPA identification number and preparing manifests to accompany waste transported to treatment, storage, or disposal facilities.

The 1984 RCRA amendments, among other things, reduced the minimum quantity of hazardous waste which determines whether a generator must comply with RCRA requirements. DOD is unable to estimate the number of additional installations that will be subject to RCRA because of this amendment, but believes it will be substantial.

RCRA allowed EPA to delegate much of its responsibility to state regulatory agencies provided the state's hazardous waste program was at least as stringent and comprehensive as the federal program. Using this authority, EPA has delegated to most states the responsibility for permitting, inspecting, and regulating hazardous waste within their borders. As a result, states carry out inspection and enforcement activities at most DOD installations.

A further discussion of RCRA regulations and inspection and enforcement activities is provided in appendix I. Details on the permitting process and the status of DOD installations in obtaining final hazardous waste permits are in appendix II.

DOD Plans for Complying With RCRA

The Office of the Secretary of Defense develops environmental policy and monitors the Army, Navy, Air Force, Marine Corps, and Defense Logistics Agency (DLA) programs to carry out policy. In the remainder of this report, we refer to the Army, Navy, Air Force, and Marine Corps as the services.

On October 21, 1980, DOD established an overall policy to implement the RCRA regulations published by EPA in May 1980. Specifically, the policy is to:

- implement within DOD the hazardous waste management regulations that EPA published under RCRA or that states enact under EPA authorization;
- dispose of hazardous waste in an environmentally acceptable manner;
- reuse, reclaim, or recycle resources, including hazardous wastes, where practical and thus conserve on total raw material usage; and
- limit the generation of hazardous waste through alternative procurement practices and operational procedures that are attractive environmentally yet are fiscally competitive.

Under this policy, DOD designated the installation commander as the facility owner for regulatory purposes. Accordingly, installation commanders are responsible for ensuring that all installation operations, including those of tenants,⁴ comply with all RCRA requirements. Installation commanders are responsible for developing and implementing a hazardous waste management plan consistent with RCRA requirements. Tenants are to insure that their operations are consistent with the installation's plan.

Under a 1980 policy, DOD had assigned responsibility for disposing of many types of hazardous waste to DLA because the DOD believed "the single manager concept" was the most effective approach to disposal of hazardous waste. DLA was also given responsibility for constructing and operating the necessary storage facilities to support its disposal mission. DLA delegated the operational responsibility for disposal and storage facilities to its Defense Reutilization and Marketing Service (DRMS),⁵ headquartered in Battle Creek, Michigan. DRMS operates many property disposal offices on military installations.

Though DLA was given responsibility to dispose of many categories of hazardous waste, certain categories, such as sludges from industrial plant processes and biological materials, remained the responsibility of the generating organization.

The bulk of the hazardous waste produced by DOD operations is disposed of by DOD organizations other than DLA. DRMS records show that it disposed of 12 million pounds of solids and 4 million gallons of liquid hazardous waste through contracts with commercial firms in fiscal year 1984. Based on 1984 data reported to DOD by the services, we estimate that the waste disposed of by DRMS represented about 4 percent of the hazardous waste generated by DOD operations, and 19 percent of the hazardous waste disposed of through contracts by all DOD components.

Consistent with its policy to recover, recycle, and reuse resources, DOD, in January 1984, established a Used Solvent⁶ Elimination (USE) program

⁴Tenants are defense components located at an installation that are responsible to a different organization within the DOD hierarchical structure than the installation commander.

⁵Prior to July 1, 1985, DRMS was the Defense Property Disposal Service.

⁶Solvents are chemicals used to dissolve various other substances such as grease and oil on mechanical parts. When these chemicals reach the drinking water supply through the contamination of surface or groundwater, they pose an unacceptable health risk to those drinking the water for an extended period.

to eliminate the disposal of recyclable solvents as a hazardous waste by October 1, 1986. Under this program, DOD components were directed to initiate organic solvent management programs to ensure that solvents are properly segregated, stored, and recycled. This program subsequently took on added significance because RCRA, as amended in 1984, generally bans the land disposal of solvents after 1986 unless EPA determines that such a prohibition is not required to protect human health and the environment.

DOD has an environmental management information system to help it monitor installation compliance with environmental laws such as RCRA and certain DOD initiatives. Installation commanders annually report, among other things, total hazardous waste generations, the number and nature of RCRA violations cited by EPA or state agencies, permit status, and the status of the installation's solvent recycling program. The services aggregate the data submitted by the various organizations under their jurisdiction and transmit it to DOD.

Objectives, Scope, and Methodology

To meet the specific congressional interest in DOD's management of hazardous waste in the United States the objectives of our review were to determine

- the extent to which DOD installations are meeting RCRA requirements,
- the effectiveness of DLA's disposal and storage functions, and
- the progress made by installations in carrying out DOD's policy to reduce the volume of hazardous waste requiring disposal.

We judgmentally selected and visited 14 of the 333 DOD installations in the United States that are required to comply with RCRA (see app. III). The installations selected included at least one in each of the services and are geographically dispersed. Further, the installations selected include various size generators of hazardous waste and varying types of operations, e.g., industrial-type manufacturing, a world-wide distribution center, engineering centers, and training centers.

To determine how well these DOD installations were complying with RCRA requirements, we obtained data, studies, records, reports, and comments from officials at the 14 installations on their management of hazardous waste. We also reviewed state environmental inspection reports and correspondence for 1982, 1983, and 1984. To gain a greater perspective on compliance with RCRA, we contacted state environmental officials for the seven states in which the 14 installations are located (see app. III), to

determine (1) the methodology used to inspect DOD installations' operations involving hazardous waste, (2) the frequency of state inspections and follow-up actions on violations, and (3) the compliance with RCRA requirements for the 95 DOD installations in these states.

To evaluate the effectiveness of DRMS's operations in carrying out its disposal and storage responsibilities, we reviewed its contracting and contract administration processes and procedures. We obtained data for 1982 through 1984 on, among other things, the number of contracts awarded and administered, dollar value of such contracts, and volume of wastes disposed of through commercial firms. Though we concentrated on the contracts covering the 14 installations we visited, these contracts also covered many other installations in the same general geographical areas. At the 14 installations visited, we inquired into their contracting for the disposal of those hazardous wastes for which they have responsibility.

In evaluating the DRMS program to construct storage facilities, we obtained data on the DRMS hazardous waste storage plan, DRMS processes and procedures to construct the facilities, and the current status of the program in relation to the DRMS plan. We also obtained correspondence from DLA, DRMS, and the services dealing with coordination between DOD organizations, and the timeliness of DRMS actions to meet needs at the installation level.

To determine the progress made by DOD in reducing the volume of hazardous waste, we assessed whether industrial waste treatment plants could treat more waste and how rapidly installations/generators were implementing the USE program. At those installations we visited with industrial waste treatment plants, we obtained data for each plant on treatment capacity, actual usage, type of wastes being treated, and the volume of similar wastes being disposed of rather than treated. We also reviewed studies funded by DOD showing that greater use could be made of such plants to reduce the volume of hazardous waste requiring disposal at less cost. Under the USE program, we identified the types and volumes of solvents being recovered, recycled and reused at each installation visited. We also obtained data on solvents being disposed of rather than being recycled and, through interviews with installations and generator officials, the reasons for the pace of progress in recycling all solvents.

We also met with officials of DOD, the services, and DLA to obtain data on policies, actions taken, and results obtained in hazardous waste management. We also inquired into recent DOD initiatives and how they fit into DOD's long range plans to manage hazardous waste.

Our review was conducted in accordance with generally accepted government auditing standards.

In addition to this report, we are reviewing federal civilian agencies' efforts to comply with regulatory requirements.

Many DOD Installations Are Out of Compliance With RCRA Requirements

DOD must comply with RCRA, which was enacted to regulate, among other things, the management of hazardous waste and improve waste disposal practices. Under DOD policy, each installation commander is responsible for ensuring that installation operations comply with RCRA requirements.

DOD installations have made progress toward coming into compliance with RCRA requirements since EPA published its implementing regulations in May 1980. However, many installations were not in compliance with RCRA requirements. Twelve of the 14 installations we visited were out of compliance. In the seven states where the 14 installations are located, state regulatory officials considered 41 of the 75 DOD installations they inspected to be out of compliance with RCRA. This included the 12 installations we found to be out of compliance. Also Navy audits of 73 Navy waste generators showed that about 90 percent were out of compliance.

Officials at the installations and state regulatory agencies attributed noncompliance to a number of factors, including the lack of command level emphasis on management of hazardous waste, the lack of storage facilities conforming with RCRA requirements, and the installation commanders' lack of authority over tenants. Regarding the latter, this is further discussed in chapters 3 and 4 on contracting for disposal of hazardous waste and construction of storage facilities.

The DOD Director of Environmental Policy, with whom we discussed our findings, stated that the Environmental Policy Directorate¹ was unaware of the overall compliance status of installations because it did not have the data to make a determination. To improve oversight of hazardous waste management, DOD recently established a policy requiring the services to audit installations to determine compliance with RCRA. In addition, DOD plans to make substantial changes in its environmental management information system to obtain data that will enable it to monitor the services' programs to achieve compliance with RCRA at their installations.

¹The Directorate formulates policy and oversees the services implementation of it.

Most Installations Visited Were Not in Compliance

Data from state regulatory agencies, mainly inspection reports, for the 14 installations we visited showed 2 installations—Anniston and Sacramento Army Depots—were in compliance with RCRA requirements during 1984. The remaining 12 installations were out of compliance as each had been cited for one or more violations.² Five of the installations had incurred three or less violations each when last inspected. The remaining 7 installations had incurred between 4 and 17 violations each.

As shown in table 2.1, a comparison of state inspection data on each installation for 1982 through 1984 revealed that most of the 12 installations had fewer violations in 1984 than earlier.

**Table 2.1: RCRA Violations by
Installation**

Installation	Number of Violations ^a		
	1982	1983	1984
Naval Air Station, Alameda	21	^b	13
Philadelphia Naval Shipyard	5	6	9
Marine Corps Air Station, Cherry Point	15	13	8
Kelly Air Force Base	16	13	5
Mare Island Naval Shipyard	^b	8	17
Tinker Air Force Base	7	^b	5
Naval Air Station, Corpus Christi	^b	9	4
Naval Air Engineering Center	^b	^b	3
Randolph Air Force Base	7	7	3
Bergstrom Air Force Base	1	9	3
Naval Air Development Center	^b	3	1
Navy Ships Parts Control Center	4	4	1

^aBased on annual inspections.

^bNo inspection reports were available.

When RCRA violations are found by state inspectors, the state generally sends a letter to the installation commander notifying him of the violations found during the inspection and requesting that corrective action be taken. In general, the seven state regulatory agencies, recognizing that compliance with RCRA requirements may require several years, attempted to work with the commanders to bring the installations into compliance within a reasonable period of time. However, the states expected the installations to show progress toward compliance.

²A violation is one or more deficiencies under a specific section of a category of regulatory requirements.

Most Violations at the 12 Installations Were Serious

The most recent state inspection data for the 12 out-of-compliance installations show a total of 72 RCRA violations. Using EPA's policy guidance on classifying violations, 47 of the 72 violations, or 65 percent, were Class I violations, the most serious type.

EPA guidance defines a Class I violation as one that results in a release or serious threat of release of hazardous waste to the environment, or involves the failure to assure that (1) groundwater will be protected, (2) proper closure and post-closure activities will be undertaken, or (3) hazardous wastes will be destined for and delivered to approved facilities. A Class II violation is one that does not meet the criteria for Class I violations.

As shown in table 2.2, the two most common Class I violations at the installations we visited involved pre-transport and use and management of container requirements. Pre-transport violations involved the failure to meet the packaging, labeling, marking, and placarding requirements for containers holding waste. "Use and Management of Containers" violations involve storage of waste in containers that were in poor condition or were leaking.

Table 2.2: Types of Violations in 1984

Requirement	Class I	Total
Hazardous waste determination	3	3
Manifest	5	5
Pre-transport	11	11
Recordkeeping/reporting	0	3
Use/management of containers	8	10
Tanks	1	4
General facility standards	2	11
Preparedness/prevention	2	6
Contingency plan	1	4
Groundwater monitoring	4	4
Closure/post-closure	4	5
Storage	3	3
Treatment	1	1
Disposal	2	2
Total	47	72

As shown in table 2.3, 11 of the installations we visited had at least one Class I violation in 1984.

Chapter 2
Many DOD Installations Are Out of
Compliance With RCRA Requirements

Table 2.3: Violations at Installations Visited

Installation	Class I	Total
Naval Air Station, Alameda	7	13
Philadelphia Naval Shipyard	7	9
Marine Corps Air Station, Cherry Point	6	8
Kelly Air Force Base	4	5
Mare Island Naval Shipyard	10	17
Tinker Air Force Base	4	5
Naval Air Station, Corpus Christi	3	4
Naval Air Engineering Center	3	3
Randolph Air Force Base	1	3
Bergstrom Air Force Base	1	3
Naval Air Development Center	1	1
Navy Ships Parts Control Center	0	1
Anniston Army Depot	0	0
Sacramento Army Depot	0	0
Total	47	72

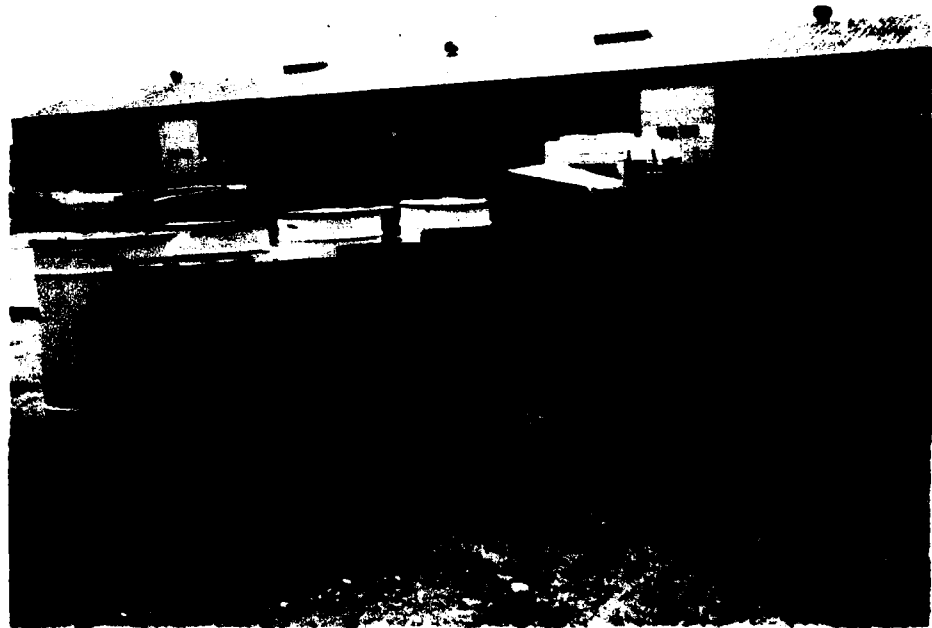
An example of hazardous waste improperly stored in leaking containers beside a storm drain with no impermeable floor, roof, or spill containment at Tinker Air Force Base, Oklahoma is shown in figure 2.1.

Figure 2.1: Hazardous Waste Improperly Stored at Tinker Air Force Base



An example of hazardous waste improperly stored at Corpus Christi Naval Air Station, Texas with no impermeable floor, roof, or spill containment is shown in figure 2.2.

Figure 2.2: Hazardous Waste
Improperly Stored at Corpus Christi
Naval Air Station



DOD, in commenting on a draft of this report (see app. IV), stated that violations we noted were of a transitory nature, and either have been cleared with the state agency or EPA or are under a compliance plan. We agree that some violations may have lasted for just a brief period of time or were corrected shortly after their disclosure by state inspectors. However, as shown previously, the 12 out-of-compliance installations had violations each time they were inspected. Generally, the inspections were conducted annually during the 3 years included in our review. Regarding the transitory nature of the violations, our analysis of state inspection reports showed that 34 of the 72 violations cited in 1984 were of a repetitive nature.

Causes of RCRA Violations **as Identified by Installation** **Officials**

Officials at 5 of the 12 out-of-compliance installations gave us their opinions of why their particular installations were in violation of RCRA. Though not necessarily applicable to each installation, the causes cited by the installation officials were (1) lack of command level emphasis on

effective hazardous waste management, (2) lack of cooperation by tenants who report to a major command other than the one to which the installation commander reports, (3) conflicting directions from state regulatory agencies and commands, (4) inattention to administrative matters by base personnel handling hazardous waste, (5) insufficient staff to inspect generators regularly, and (6) lack of storage facilities that meet RCRA requirements.

We did not attempt to validate these statements. We believe the recently established DOD policy requiring audits at installations to determine compliance, which are to be performed by groups independent of the installations, should disclose the underlying causes.

In commenting on a draft of this report, DOD agreed that execution of administrative requirements has sometimes been incomplete. However, DOD stated that command emphasis on hazardous waste management is quite high. Examples of command emphasis cited by DOD included (1) numerous comments on DOD's proposed hazardous waste policy change in 1985 received from all levels of command and (2) that most installations have environmental protection committees chaired by ranking installation officials. DOD did not comment on the other four causes of RCRA violations identified by installation officials.

The causes of the violations were the opinions of officials at 5 of the 12 out-of-compliance installations and were not applicable to each installation. However, officials from three states cited similar reasons for the lack of compliance with RCRA. Further, the Chief of Naval Operations, in a December 1984 report which disclosed that 90 percent of the Navy generators reviewed were out of compliance, stated that activities with high levels of compliance generally have excellent command support at activity and major command level. In our opinion, this statement indicates that commands must place greater emphasis on the need for compliance with hazardous waste regulations.

Seven States Consider Many Installations Out of Compliance

We contacted regulatory officials from the 7 states where the 14 installations we visited are located. Seventy-five of the 95 DOD installations subject to RCRA in those states had been inspected. As shown in table 2.4, the states considered 41 of the 75 installations to be out of compliance with RCRA. The remaining 34 installations were in or substantially in compliance. The terms "out of," "in," and "substantially in" compliance were used by state regulatory officials, but they provided no precise definitions for these terms.

Chapter 2
Many DOD Installations Are Out of
Compliance With RCRA Requirements

Table 2.4: Installation Compliance
Status by State as of 1984

State	Number of installations			Total
	Not in compliance	Substantially in compliance	Status Unknown	
Alabama	0	6	0	6
California	13	6	15	34
New Jersey	2	6	1	9
North Carolina	2	3	0	5
Oklahoma	3	0	2	5
Pennsylvania	4	9	0	13
Texas	17	4	2	23
Total	41	34	20	95

State regulatory officials from North Carolina, Oklahoma, and Pennsylvania stated that the degree of compliance with RCRA requirements by DOD installations in their states was comparable to that of private industry. A New Jersey official said installation compliance was much better than private industry. And, an official of the State of Alabama said the state was favorably impressed by installation personnel as they exhibited a good attitude and concern toward the need to comply with RCRA.

On the other hand, a California official stated that DOD installations are coming into compliance at a slow pace because some installation commanders have not been involved with hazardous waste management, personnel changes had delayed progress, and there has been resistance to state efforts to bring the installations into compliance. The Oklahoma official stated that factors affecting compliance at the major installations in the state were the lack of (1) personnel training on the proper handling of hazardous waste, (2) emphasis by installation commanders on hazardous waste management, and (3) authority by installation environmental coordinators to require operators of hazardous waste facilities to comply with RCRA requirements. Further, a North Carolina official said the complex organizational structure of DOD installations may impede compliance with RCRA because their compliance problems generally center around the installation commander's lack of authority over tenants who generate most of the hazardous waste.

In commenting on a draft of this report, DOD did not agree with reported state regulatory agencies' views on the causes for DOD non-compliance, especially in regard to the lack of command level authority and involvement. Further, DOD noted that officials from two states found DOD to be

ahead and none found DOD to be behind in compliance efforts when compared to private entities.

Navy Reports That Many of Its Generators Are Not in Compliance

The Chief of Naval Operations, in a December 1984 report, found that a large percentage of Navy hazardous waste generating facilities were out of compliance. The report summarized on-site reviews of 73 Navy generators of hazardous waste. These reviews, performed by the Engineering Field Divisions of the Naval Facilities Engineering Command between July 1, 1982, and June 30, 1984, were conducted using criteria similar to those used by EPA. The report showed that 90 percent of the generators were out of compliance. The 73 generators represented about 50 percent of the total Navy generators.

In commenting on bringing all generators into compliance with RCRA requirements, the Chief of Naval Operations in the report stated that few of the problems were insurmountable and that active involvement by major commands was essential. His specific comments in this regard follow.

"Few of the problems are insurmountable. Although some of the problems can be fixed with the construction of better storage facilities, activities can usually correct the problems quickly if they chose to do so.

"Hazardous waste management is everyone's job. It requires command support. Activities that show high levels of compliance generally have excellent command support at activity and major command level. At several activities, the major command has taken an active interest in the compliance assessments by asking the activity for a written plan on how they intend to follow up on the Engineering Field Division's recommendations for improvement. Such involvement by major commands is essential."

In commenting on a draft of this report, DOD pointed out that this report by the Chief of Naval Operations resulted in a considerable increase in command attention at major command and lower echelon levels. Whether the Navy has increased the command attention given to compliance subsequent to the December 1984 report will be reflected in later state inspection reports.

DOD Plans to Improve Its Oversight of Compliance With RCRA

The Director of Environmental Policy advised us that his office was unaware of the overall compliance status of the installations because it lacked the data necessary to make that determination. To achieve better oversight, DOD established a policy requiring periodic audits at all installations to determine compliance with RCRA. Also, DOD plans to significantly revise its environmental management information system to provide data that will enable it to measure the success of its hazardous waste management policies and programs, including compliance with RCRA.

The Services Are Now Required to Audit Installations' Hazardous Waste Operations

On January 17, 1985, DOD established a new policy requiring the services to conduct periodic audits (generally called environmental audits by EPA) at all installations subject to environmental laws, including RCRA. The stated purpose of the policy is to use audits as a means of insuring service compliance with all state, local, and federal environmental laws and regulations. It also is intended to assure DOD management that its installations do not contribute to environmental problems which could expose the government to large future financial liabilities or significantly degrade the environment.

The policy guidance states that DOD believes stronger emphasis is needed on improving compliance with RCRA. DOD also believes that with the implementation of this audit policy the conditions of noncompliance will be prevented, and if not, they will be identified and corrected. In discussing the rationale for the audit policy, the policy guidance stated DOD believes the use of audits at installations offers a means of achieving, maintaining, and monitoring compliance. Further, it gives DOD a means to identify or prevent instances of RCRA noncompliance instead of only reacting to problems as they are brought to DOD's attention.

Although it will be a while before the Army and Air Force fully implement the audit policy, both are developing audit guidelines and making plans to train personnel. The Navy has been performing such audits since 1982 and plans to continue to do so.

The Environmental Management Information System Will Be Revised

In 1980 DOD expanded its environmental management information system to include data on hazardous waste management. This data included information on the amount of hazardous waste generated, number of installations generating and recycling wastes, as well as notices of violations of RCRA resulting from EPA and state inspections.

Each of the services was to receive summary data from its major commands and present an annual report to DOD. The major commands, in turn, were to receive the basic data from the individual installation commanders under their respective jurisdictions. The Defense Environmental Status Report was the basic source document used in this process.

According to officials of DOD's Environmental Policy Directorate, the information contained in the status reports can not be compared from year to year because the kinds of information DOD requested from the services changed somewhat every year. Further, they stated, the information submitted by the services is not being reported on the same basis; certain data are not being provided by all services; data are not reconcilable; and the services are not using the same definitions for specific data terms.

DOD's Director of Environmental Policy stated a reliable status report is important to DOD because it is the only efficient means available for DOD to know what the services and installations are doing in hazardous waste management. Further, he believes accurate report data is needed to measure the success of a particular policy or program.

Added importance is placed on a reliable environmental management information system by the RCRA amendments of 1984. Specifically, these amendments require each federal agency to undertake a continuing program to compile, publish, and submit to EPA inventory data for each hazardous waste facility. The inventory is to include data such as the amount, nature, and toxicity of waste; nature of environmental contamination; and current status of each facility.

According to the Director, the environmental management information system will be significantly revised so that it meets the specific needs of DOD to monitor service compliance with environmental policies and programs and identify any need for changes in policy. The planned revisions encompass changes in report format, content, and data sources used. The major revisions include the following.

- Standard definitions prepared by DOD and used by all the services in order to assure comparability of data from the services.
- Data requirements in certain areas, such as for programs designed to reduce wastes requiring disposal, will be expanded to enable DOD to measure the success of environmental policies and programs.

- Much data will be deleted from the status report because DOD will obtain it from EPA's computerized data base. Specifically, it will obtain data on EPA and state inspections of installations and data related to permits required under RCRA and other environmental laws.

The use of the EPA data base will enable DOD to oversee the services' compliance with RCRA. Obtaining and using this data began in late 1985 when EPA centralized its compliance and enforcement reporting system. Under this system, EPA and the states are to report facility-specific information monthly. This report will specifically identify the (1) category of any RCRA violations, (2) class or severity of each category of violation, and (3) type of enforcement action taken, e.g., warning letter, administrative order, or civil action in the courts. DOD plans to provide the data to the services for their use in monitoring the installations' compliance as well as using the data for its own purposes.

In addition, the current manual system may be computerized. DOD is studying how a computerized system could be used to identify trends or patterns of compliance and noncompliance, and to monitor overall program implementation. The results of the study are expected about January 1987.

The Director of Environmental Policy believes a revised, computerized system could significantly reduce the effort required by the services and installations to submit the status report, speed up the reporting process, produce reliable and comparable data, and enable DOD to assess its policies and programs.

Conclusions

Many DOD installations which handle hazardous waste were out of compliance with RCRA requirements. Installation and state agency officials said causes of noncompliance included lack of command emphasis on effective hazardous waste management; lack of cooperation by installation tenants; and lack of installation commanders involvement with hazardous waste management. Further, the DOD Environmental Policy Directorate was unaware of the overall compliance status of installations in the United States because it lacked the data necessary to make that determination. Without this data, DOD would not be able to identify and address the causes of noncompliance.

The new DOD policy established in January 1985, appears to partially address the lack of reliable information problem by requiring the services to conduct periodic audits to determine installations compliance

with RCRA requirements. This coupled with a revised DOD environmental management information system should enable DOD to measure the success of a particular program or policy, and should provide DOD with adequate data to monitor the services' programs to achieve compliance with RCRA at their installations.

Agencies Comments and Our Evaluation

Copies of a draft of this report were provided for review and comment to DOD and EPA. Their comments are included as appendixes IV and V of this report.

The draft report contained no recommendations to DOD on compliance with RCRA requirements. Generally, DOD agreed with the facts presented in this chapter with the exception of the comments made by installation and state regulatory agencies' officials who partially attributed noncompliance to the lack of command level emphasis on management of hazardous waste. DOD's comments relating to our findings on installation compliance with RCRA requirements and our evaluation of such comments have been incorporated as appropriate in the chapter.

EPA had no direct comments related to the substance of the draft report. However, EPA stated that it would like to urge DOD to consider the potential implications of the new small generator requirements on their waste management activities. While the draft of this report only addresses existing practices and problems, these new regulations may require DOD to manage a significantly larger quantity of waste as hazardous.

See page 63 for our recommendation concerning the new policy implementation.

The Defense Reutilization and Marketing Service Has Not Provided Timely and Reliable Service for Disposal of Hazardous Waste

In order to comply with RCRA and to limit the need for storage facilities, installations require timely and reliable service for the disposal of hazardous waste. In 1980 the responsibility for disposal for hazardous waste was transferred from DOD installations to DRMS. However, responsibility for compliance with RCRA requirements remained with the installations.

We found that DRMS has encountered difficulties in providing timely and reliable service to the installations for disposal of hazardous waste. Wastes were stored at installations for long periods of time rather than being disposed of because (1) DRMS contractors either were not picking up the waste when required or defaulting on their contracts and (2) DRMS was slow in issuing orders requiring contractors to make pickups. DRMS officials attributed these problems to its lack of adequate staff. Because many installations do not have storage facilities that meet RCRA design requirements, storage for long periods of time increases the risk associated with handling hazardous waste. To prevent operational shut-downs and RCRA violations, several installations contracted on their own to dispose of the hazardous waste rather than rely on DRMS.

DRMS plans several actions to improve the quality of their services, but implementation of these actions will require that additional staff be hired and trained. Meanwhile, DOD is implementing a new policy that emphasizes that the services and their commands and installations have maximum authority and flexibility to achieve compliance with RCRA, which includes determining who will contract for the disposal of hazardous waste. DOD's Director of Environmental Policy believes that the emphasis of this policy will improve the quality of service for disposing of waste and result in better compliance with RCRA.

DRMS Needed to Establish an Organization to Contract for Disposal of Waste

In 1980 DOD delegated to DLA the responsibility to dispose of hazardous waste. This delegation of responsibility was made because DOD believed that the "single manager concept" was the most effective approach to disposal. The specific advantages expected from this concept were effective coordination with environmental authorities, avoidance of duplication of staff and other resources, and prevention of confusion over individual responsibilities.

In 1980 DLA delegated operational responsibility for hazardous waste disposal to DRMS which operates property disposal offices on many military installations. DLA planned for DRMS to award contracts to remove

and dispose of hazardous waste from all DOD installations as soon as possible. In the interim, the installation commanders were to continue contracting for waste disposal.

To award and administer disposal contracts, DRMS had to establish an organization to contract with commercial firms for the disposal of hazardous wastes. This required, among other things, hiring and training personnel and developing internal procedures to properly implement federal procurement policies. In addition, it had to contact the many installations to obtain information on volumes of hazardous waste requiring disposal and coordinate contractor pickup points.

DRMS awarded one contract by the end of fiscal year 1982. It awarded an additional 39 contracts in 1983 and 44 in 1984, at which time it had contract coverage for all installations. According to DRMS officials, the agency was unable to award contracts sooner because of recruiting problems. They said potential employees were unwilling to move to DRMS Headquarters in Battle Creek, Michigan, and/or believed the positions offered little opportunity for advancement. DRMS partially solved the recruiting problem by locating some contracting personnel at its Ogden, Utah, regional office in 1981 and the Columbus, Ohio, and Memphis, Tennessee, regional offices in 1984.

DRMS Disposal Service Frequently Is Not Timely and Reliable

After DRMS entered into contracts with commercial firms to dispose of hazardous waste, it faced problems of nonperformance by the contractors. At those installations covered by DRMS contracts, we found many instances where DRMS disposal services had been inadequate. For example, DRMS records showed hazardous waste was being stored for long periods of time before disposal and contractors were not meeting the contractual pickup dates. To avoid violating RCRA or shutting down operations, some installations contracted on their own for the disposal of hazardous waste. In other cases, interruptions in DRMS disposal services endangered the health and safety of installation personnel and hampered the mission of the installations. As a result, the major service commands became critical of DRMS service.

Waste Was Backlogged and Contractors Were Frequently Late in Performing

A measurement of how effectively DRMS disposal service was meeting the needs of DOD installations is the length of time hazardous waste was stored awaiting pickup by DRMS contractors and whether they picked up the waste within the contractual time frames. We found DRMS had accumulated a large backlog of waste awaiting disposal and the performance of its contractors was a contributing factor.

DOD requires the disposal of hazardous waste within 60 calendar days of its receipt by a property disposal office. This requirement was intended to minimize (1) the backlogs of waste, (2) associated environmental risks, and (3) potential violations of environmental regulations. As of December 28, 1984, a DRMS report showed most of the hazardous waste awaiting disposal had been in storage in excess of 60 days.

The December 1984 report was based on line items rather than the volume of hazardous waste in storage. A line item could be a one-pound container of waste, 100 55-gallon drums of waste, or a 25,000 gallon tank of waste. The report showed 66 percent of the line items had been stored over 60 days, 28 percent over 6 months, and about 9 percent had been stored over one year. The reported inventory aging data are shown in table 3.1.

Table 3.1: Hazardous Waste Inventory Aging Data

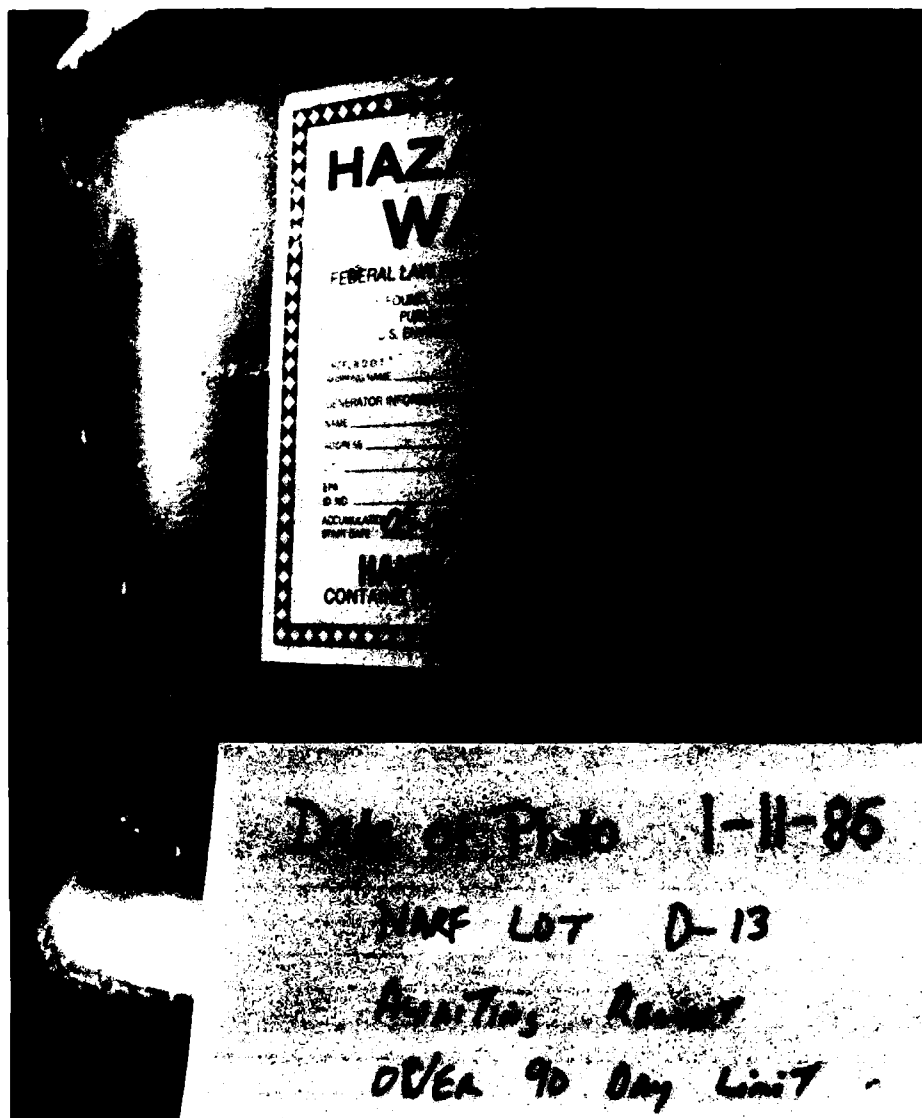
Days in storage	Number of line items	Percent of total ^a
0 • 30	1,949	18
31 • 60	1,731	16
61 • 90	1,215	11
91 • 120	1,536	14
121 • 150	793	7
151 • 180	449	4
181 • 365	2,047	19
366 and over	988	9
Total	10,708	100%

^aFigures do not add because of rounding.

The DRMS report also showed the backlog condition existed at almost all of its property disposal offices in the United States. Specifically, 98 of the 103 property disposal offices handling hazardous waste had some waste stored over 60 days. Figure 3.1 depicts hazardous waste stored over 250 days at the Alameda Naval Air Rework Facility.

Chapter 3
The Defense Reutilization and Marketing
Service Has Not Provided Timely and Reliable
Service for Disposal of Hazardous Waste

Figure 3.1: Hazardous Waste Stored
Over 250 Days at the Alameda Naval
Air Rework Facility



In commenting on a draft of this report, DOD stated that the number of DRMS activities with hazardous waste backlogs was reduced in fiscal year 1985, and that continued emphasis on backlog reduction is being accomplished with further decreases anticipated in fiscal year 1986. Our review of a December 1985 report by DRMS shows that the number of line items awaiting disposal had increased from the previously reported 10,708 to 10,927. However, the percentage of items in storage for over 60 days had decreased from 66 percent to 58 percent for the period.

DRMS had recorded delinquency data on contractor pickups applicable to 216 orders issued under 44 hazardous waste contracts awarded in fiscal year 1984. Generally, the contracts required contractors to remove the waste within 15 or 20 days of the order issuance date. Our analysis of this data showed contractors were frequently delinquent in performing and, therefore, contributed to the hazardous waste backlog. Specifically, our analysis showed:

- 40 of the 44 contractors, or 91 percent, failed to meet at least one pickup date,
- contractors had not completed pickup of the waste within the contractual time frame on 130, or 60 percent, of the 216 orders, and,
- final pickup for the 130 orders were on the average 39 days late, ranging from 1 to 216 days.

DOD stated that industry capacity has adversely affected the DRMS disposal capability. DRMS, in response to this aspect of its contracting problem, recently hosted a hazardous waste industry seminar which, according to DOD, resulted in a better dialogue with the disposal industry and identification of several options to resolve contracting issues related to timeliness and reliability of disposal service.

Some Installations Awarded Contracts to Compensate for Unreliable Service

Six of the 14 installations we visited contracted for the removal of hazardous waste even though DRMS had contracts in place to service these installations. Generally, they used their own contractor when it was believed prompt removal of hazardous waste was necessary to comply with RCRA and/or prevent operational shutdowns. The details for some of these instances follow.

- Tinker Air Force Base in Oklahoma occasionally had used its own contractor to remove hazardous waste that could not be removed quickly enough under the DRMS contract. A major generator would have had to shut down if the storage tanks for the hazardous waste were not emptied in a timely fashion. To maintain operations the installation at times required the tanks to be emptied with less advance notice than provided under the DRMS contract. In these cases, the installation used the base contractor.
- Philadelphia Naval Shipyard and the Naval Air Development Center at Warminster, Pennsylvania, occasionally used their contractors to remove and dispose of waste because the DRMS disposal service could not always remove waste in time to comply with the RCRA regulation requiring removal within 90 days.

- Naval Air Station, Corpus Christi in Texas did not use DRMS to dispose of wastes because, in 1982, DRMS did not quickly remove about 600 drums of hazardous waste which were not stored in accordance with RCRA regulations. A large generator on the installation had to shut down part of its operations due to a lack of storage space until these wastes were removed. This experience convinced the installation commander and the generator that DRMS could not provide the immediate on-call support needed to prevent the operational shutdowns that would occur if all available storage was filled.

**Other Installations
Experienced Problems
Related to DRMS Disposal
Service**

Although the other eight installations we visited relied solely on DRMS to remove wastes, they also experienced untimely and unreliable service. For example, hazardous waste backlogs at three installations endangered health and safety, hampered installation missions, and/or caused potential RCRA violations.

- The Navy Ships Parts Control Center in Mechanicsburg, Pennsylvania, went 1 year, from March 1984 through February 1985, without any pickup of hazardous waste. The DRMS contractor refused to make pickups during March and April 1984 because of a dispute with DRMS over contract terms. On April 23, 1984, the installation notified DRMS that each day's delay in the removing the waste backlog could adversely affect safety and operational missions. This contractor continued to refuse to pick up wastes until the contract was terminated in October 1984 and DRMS awarded a new contract to another firm for the backlog that accumulated in March and April. In February 1985, DRMS awarded a second contract for wastes generated after April 1984. Both contractors began removing hazardous waste in March 1985.
- Because of financial difficulties, the DRMS contractor servicing Kelly Air Force Base in Texas stopped making pickups in October 1984 and DRMS terminated the contract shortly thereafter. DRMS awarded another contract in January 1985, 3 months later. By that time the waste was deteriorating rapidly due to weather and storage conditions, and there was concern over the potential for explosions of containers holding toxic waste. The wastes were picked up in February 1985.
- At the Marine Corps Air Station, Cherry Point, North Carolina, the DRMS contractor did not make pickups for a 6-week period between October and December 1984 because DRMS was withholding payment for services billed pending receipt of appropriate documentation from the contractor. As a result, the installation was in violation of the RCRA requirement limiting waste accumulation to 90 days.

Some Service Commands Have Been Critical of DRMS

Some of the major commands have been critical of DRMS disposal services. In December 1983 the Commander, Naval Facilities Engineering Command, reported to the Chief of Naval Operations that the way DRMS was accomplishing its hazardous waste mission was unsatisfactory. Specifically, the Commander stated the centralized disposal contracts managed from DRMS were nonresponsive and inflexible to local conditions. Further, he stated the system used by DRMS to order contractor pickups took too long, thus installation commanders risked possible enforcement measures by EPA.

In January 1984 the Commander, Air Force Logistics Command, notified DRMS that its failure to timely dispose of hazardous waste caused an installation to violate RCRA requirements. Specifically, the 90 day storage restriction was exceeded and hazardous waste was stored out in the open because the storage facility was full.

In late 1984, according to a DRMS official, the Commanding General, Army Training and Doctrine Command, verbally complained to the Commanding General of DLA that many installations under his command had hazardous waste backlogs and requested that DRMS take the necessary actions to dispose of the backlog. In March 1985 the Army Materiel Command informed us that its storage facilities must have sufficient capacity to handle potential backlogs that may result from DRMS not providing timely removal of hazardous waste.

Procurement Management Review Surfaces Many Problems

In August 1984 a DLA review team conducted an on-site review of DRMS contracting operations. The review concentrated primarily on functions associated with hazardous waste disposal contracting, particularly contracts used to service the installations. The team surfaced several conditions that contributed to the waste disposal problems encountered by DOD installations. The review team attributed most of these problems to DRMS's lack of adequate staff. In addition, the lack of adequate working space as well as computer and telecommunication capabilities were cited as contributing factors. The DLA report cited the following problems.

- Contract awards were delayed because of inadequate staffing and inexperienced personnel. A technical support group authorized 16 positions had 7 vacancies. Of the nine people employed, many had limited experience.
- Waste inventories were frequently misidentified which necessitated a large number of contract modifications.

- Contracts were terminated due to contractors' financial problems, failure to perform, and violation of EPA/state regulations.
- DRMS had not been able to closely monitor contractor pickups of waste and maintain performance statistics by contractor due to lack of personnel.
- In the spring of 1984, DRMS experienced an acute backlog in requests for orders to remove waste. This was due primarily to a serious staffing shortage and a rapidly increasing workload.
- Crisis management prevailed in the contracting operation. Specifically, personnel were moved from area to area to work on the "hottest" projects with the result that their normal assigned workload was put on "hold."

The DLA review team concluded "many of the problems identified probably would have been remedied if DRMS were fully staffed and provided adequate working space with access to proper communication and computer capability." The team's report listed two choices it believed would solve the recruitment problem—removing DRMS contracting mission responsibility completely or allowing DRMS sufficient time, probably 3 years, to develop its own internal pool of trained contracting personnel. The team recommended the latter option with the qualification that DRMS' contracting mission be reassessed at a later date if it was unsuccessful in solving the recruitment problem.

According to DOD, another DLA on-site review of DRMS' contracting operations was conducted in November 1985. That report recommended more decentralization of some aspects of the contracting process. There was still a significant shortfall of personnel, but DRMS believed that a reassignment of workload would alleviate this problem. A hiring plan for vacancies at the Columbus and Memphis regional offices had been implemented. DOD stated that the remainder of the 3 year time frame for internal development of the contracting function at DRMS, as indicated by the DLA review of August 1984, was still needed.

DRMS Comments

DRMS officials told us that backlogs accumulated because of poor contractor performance and DRMS' inability to issue orders to contractors in a timely fashion. They said when poor contractor performance came to their attention their lone option was to terminate the contracts and award new ones. They stated the process to award a new contract frequently took several months, which left the installations without pickups for prolonged periods. Consequently, the officials said they tolerated late pickups and terminated contracts only as a last resort. DRMS

officials stated that their inability to cope with these problems was due to the lack of adequate staff.

DRMS officials told us that they planned to reduce the current backlogs and prevent future accumulations by systematically monitoring contractor pickups. They also plan to include in future contracts provisions to fine contractors for making late pickups. Contractors would also be required to have performance bonds, which will protect DRMS against damages up to 100 percent of the contract price. Also, DRMS officials told us that DRMS now has basic ordering agreements with contractors who can quickly respond to critical situations.

In addition, DRMS plans to improve its preaward evaluations to avoid contractors with the potential for marginal or poor performance. They said that some of the 15 contracts terminated through April 16, 1985, may not have been awarded had the preaward evaluations more closely scrutinized the contractors competency to perform.

In commenting on a draft of this report, DOD stated that DRMS has implemented initiatives to stimulate better contractor performance and to more intensively manage hazardous property inventories. Examples of these initiatives, according to DOD, include pre-solicitation meetings to enhance contract development and the restructuring of contract clauses to eliminate perceived ambiguities. Other initiatives, such as multi-year contracting and provision for liquidated damages, are being assessed during fiscal year 1986.

In addition, DRMS officials told us that backlogs also accumulated because orders to contractors to pick up hazardous wastes were not issued in a timely fashion. Part of this problem, according to DRMS officials, was that DRMS employees at installations retained hazardous waste rather than request its removal and disposal. As a result, DRMS had no place to put new waste. The officials told us that DRMS staff at both the regions and property disposal offices have been instructed to (1) monitor the DRMS receipt of hazardous waste from installations and (2) establish a schedule for requesting contractor removal of waste from installations in a timely manner.

DRMS officials told us they would need additional staff to implement the actions needed to improve contractor performance. They said it would take considerable time to hire and train the staff and implement the improvement actions. Further, they stated the lack of staff is the reason

DRMS has yet to put in place the procurement and administrative organization they believe is necessary to properly handle the disposal of hazardous waste.

DOD Has Established a New Policy on Management of Hazardous Waste

In discussing our review of DRMS disposal service with the DOD Director of Environmental Policy, we stressed the potential adverse effects due to the undependable disposal service and the split of responsibilities under the DOD hazardous waste program. Specifically, installation commanders have responsibility for assuring that installations meet RCRA requirements, but they are largely dependent on DRMS which has primary responsibility for disposal of hazardous waste. Under these circumstances, the installations can incur RCRA violations when the DRMS disposal service falters. This situation makes it necessary for the installations to sometimes contract for disposal of hazardous waste. The more often installation commanders must assume the disposal responsibility of DRMS, the greater the duplication of effort and resources between DRMS and the installations to dispose of waste. Use of the single manager concept was supposed to avoid such duplication.

Further, contracting through DRMS is also a deterrent to reducing the volume of waste requiring disposal as DRMS pays for disposal but the installation would be responsible for funding any waste reduction programs.

On March 11, 1985, subsequent to our meeting with the Director of Environmental Policy, DOD proposed a revised policy for achieving the goals of hazardous waste management. These goals are cost-effective compliance with environmental laws such as RCRA, including the implementing regulations, and elimination of the disposal of untreated hazardous waste. The revised policy specifically proposed that the services and their commands and installations have maximum authority and flexibility to achieve compliance, including the determination of who will dispose of hazardous waste. The proposal stated that resources for disposal of hazardous waste shall be incorporated into the management of processes generating waste and shall be considered a cost of doing business, i.e., the generator must pay for disposal. The proposed policy provided that DLA and DRMS support the services' hazardous waste management program when requested, and such support would be delineated in inter-service support agreements. Under this proposal, the services and their commands and installations would pay the disposal costs and contract for disposal of waste on their own or through DRMS. On

July 5, 1985, DOD issued a policy memorandum adopting the proposed policy change.

The Director of Environmental Policy, in a presentation to the services on August 15, 1985, stated that the policy change resulted from a review of the 1980 hazardous waste policy in relation to the goals of compliance and minimization (elimination of disposal of untreated waste). This review disclosed that the 1980 policy (1) established disincentives to attainment of goals, (2) established the pretense of responsibility inconsistent with environmental laws and withdrew authority for compliance from those really charged with compliance, and (3) eliminated cost control motivation for minimization of hazardous waste by generators through centrally funding DLA. According to the Director, the proposed new policy appropriately stresses goals, clarifies responsibility, gives the services the necessary authority, and funds the services for the job.

Although DOD comments on a draft of this report contain several references indicating that the above new policy is still in the proposal stage, in subsequent discussions, an official of the DOD Environmental Policy Directorate told us that the July 5, 1985, policy statement is the new policy but will not be fully implemented until July 1986 when guidance on its implementation, is to be included in a DOD directive. Further, in the memorandum distributing the policy to the responsible assistant secretaries of the services and the Director of DLA, the Deputy Assistant Secretary of Defense (Installations) stated the following:

"Effective management of hazardous wastes and excess hazardous materials is our greatest environmental challenge. This memorandum revises earlier policy and responds to the dynamic changes that have taken place in the law pertaining to this program.

"The attached policy statement includes goals and expresses principles which I believe will best support the needs of our installations. Our overall goals are to achieve cost-effective compliance and to eliminate the disposal of untreated hazardous waste. Therefore, our policy is that installation commanders are responsible for compliance with environmental requirements; generators are to minimize the amounts of hazardous wastes they generate and pay for disposal, and installation commanders have maximum authority and flexibility to achieve compliance. This policy will be incorporated into a DOD directive for solid waste and hazardous waste management." (Underscoring added.)

In a September 12, 1985, memorandum to the Deputy Assistant Secretary of Defense for Logistics and Materiel Management and four other DOD officials from the Director of Environmental Policy, the following

statements were made to clarify the hazardous waste management policy.

"Pursuant to discussions with the components, our subject memorandum of July 5, 1985, is clarified as follows:

"a. It is not intended that individual installations, or any unit below component level, be authorized by the policy revision to take unilateral action independent of the command structure. The policy should probably read 'service or component' in each instance where it in fact said 'installation.' This will be incorporated into the DOD instruction to follow.

"b. Although the policy stated in the memorandum is effective now, implementation must be carried out in an orderly, thoughtful process. The Hazardous Waste Policy Implementation Steering Group met on September 10 to begin this process...."
(Underscoring added.)

Conclusions

DRMS has not always provided the installations with timely and reliable service in disposing of hazardous waste. As a result, installations violated or risked violating RCRA requirements. To overcome this situation, some installations assumed DRMS' disposal responsibility.

DRMS plans certain procedural changes that cannot be implemented until additional staff are hired and trained. Also, in July 1985, DOD established a new policy for hazardous waste emphasizing that the services and their commands and installations have maximum authority and flexibility to achieve compliance with RCRA, including the determination of who will dispose of hazardous waste. Under this policy, installation commanders will be able to contract on their own or use DRMS to dispose of hazardous waste to assure compliance with RCRA. We believe that the policy change will provide installation commanders the means to control the timeliness and reliability of the disposal service on their installations which should translate into better compliance with RCRA.

By emphasizing the authority of the services and their commands and installations for deciding how to dispose of waste, the directive implementing the new policy should also provide them with an additional incentive to reduce the volume of hazardous waste requiring disposal. Funds normally needed for disposal should be available for the purchase and maintenance of equipment to treat and recycle waste. The reduction in the volume of hazardous waste being disposed of could improve the installations' compliance with RCRA regulations.

Better compliance through improving disposal practices and reducing the volume of waste, in our opinion, will come about only if the new policy is properly implemented.

DOD Comments and Our Evaluation

DOD generally agreed with our proposal, contained in a draft of this report, to finalize and implement the policy. In commenting on the draft, DOD stated that a review of the new policy by service secretariats determined that DLA should continue to provide a centrally managed hazardous waste disposal service because the services indicated they would make much use of the service. The review also, according to DOD, identified several issues that needed to be resolved including: (1) whether funds for hazardous waste disposal should be allocated directly to DLA or to the individual services, (2) whether waste management and regulatory response would be more efficient and accountability clearer if DLA's interface with regulatory requirements were conducted without a host installation as intermediary (e.g. should DLA officials sign permits as both owner and operator of a DLA storage facility versus an installation official signing as owner), (3) how to continue to expedite storage facility planning, programming, and construction, (4) which entity is primarily responsible for specific special wastes, such as munitions, and high volume wastes, such as sludges, (5) what data are needed to support annual budget requests for funds for waste disposal and how should such data be collected, (6) how to continue to improve disposal contracting and to improve service and reduce risk of off-site liability, and (7) how to implement the broad concept of minimization, which includes various efforts to reduce the amount of waste requiring disposal. The review further concluded that resolution of these issues should be included in a formal DOD directive, approved by appropriate offices to assure concurrence and facilitate execution of hazardous waste management responsibility for the foreseeable future. According to DOD, working groups of service and DLA representatives are addressing each of these issues for inclusion in the directive. The goal for issuing the directive is July 1986.

We agree that the resolution of these issues prior to implementation of the policy change will help facilitate the implementation process. However, care must be taken in preparing the implementing directive to assure that it effectively supports the stated goals. We are concerned with the implication that the funding issue could be resolved in favor of DOD directly funding the DLA/DRMS disposal function rather than having the services reimburse or fund DLA for its services. Specifically, direct

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funding of DLA was cited earlier in this report by the Director of Environmental Policy as a shortcoming of the 1980 policy as it eliminated the cost control motivation for generators. Further, as mentioned earlier, direct funding of DLA led to installation commanders having the responsibility to comply with RCRA but depending on DLA to dispose of waste in accordance with RCRA. It seems to us that responsibility for funding must be held by the party ultimately responsible for compliance with environmental requirements. Within DOD, this responsibility has been given to the services.

DOD comments related to our findings on DRMS' disposal service and our evaluation of such comments have been incorporated where appropriate in this chapter.

See page 63 for our recommendation concerning the new policy implementation.

The Defense Reutilization and Marketing Service Is Not Meeting Installations' Hazardous Waste Storage Needs

Hazardous waste storage facilities at DOD installations must be designed in accordance with RCRA requirements when hazardous waste will be retained over 90 days. In 1980 responsibility for constructing facilities to store hazardous wastes was assigned to DRMS. Subsequently, DRMS found that installations generally lacked any storage facilities meeting RCRA requirements.

DRMS determined there was a need to construct 143 hazardous waste storage facilities at an estimated cost of about \$63 million. Its construction plan, based on the number of staff members available and the estimated length of time required to develop, design, and construct the various facilities, called for these facilities to be built by the end of fiscal year 1989. As a result of recent changes in design criteria and features, this timetable may be extended beyond 1989. The services have been critical of the time being taken by DRMS to construct the needed facilities because the DRMS timetable has not met the current needs of many DOD installations to come into compliance. Some DOD installations have built their own hazardous waste storage facilities in order to come into compliance with RCRA requirements as quickly as possible.

DOD is in the process of implementing a new policy that emphasizes that the services and their commands and installations have maximum authority and flexibility to achieve compliance with RCRA, including the construction of any needed storage facilities for hazardous waste. The Director of Environmental Policy believes that the emphasis of this policy should expedite construction of hazardous waste storage facilities.

DRMS Plans to Construct 143 Storage Facilities

DRMS plans call for the construction of 143 storage facilities at its property disposal offices located on DOD installations throughout the United States. According to DRMS officials, the need for these facilities was determined through an agency assessment of certain preliminary data such as location of the DRMS' property disposal offices, location of installations generating hazardous waste, quantities of waste being generated, and availability of existing storage facilities at the installations. Generally, they stated that available facilities at the installations did not meet RCRA design requirements. These requirements apply when hazardous wastes are accumulated and stored beyond 90 days.

As of February 1985, DRMS had completed 12 of the 143 facilities it plans to build. Another 13 were under construction and 40 were in the design

phase. Of the remaining 78 facilities, some were in preliminary development and others were not being worked on. While the DRMS plan shows construction of the last facility to be completed in fiscal year 1989, most facilities remaining to be built, as shown in table 4.1, were scheduled for completion in fiscal years 1987 and 1988.

Table 4.1: DRMS Construction Schedule

Completion in fiscal year	Number of facilities
Before 1985	12
1985	11
1986	14
1987	43
1988	43
1989	5
Unknown	15
Total	143

DRMS officials stated the program was spread over several years because it did not have the staff to simultaneously work on all the proposed facilities. Further, according to DRMS, it normally takes 3 years to complete the preliminary development, design, and construction of storage facilities costing up to \$200,000. However, facilities costing over \$200,000 may take over 6 years. The difference is attributable to the size and scope of the facility coupled with the efforts needed to obtain congressional authorization since facilities costing over \$200,000 require specific authorization by the Congress.

Possible Delay in Storage Facility Construction

Although the DRMS plan was to generally complete construction of the 143 facilities by 1989, they may not be completed as scheduled. Because of design changes for certain types of storage facilities, DRMS will have to reevaluate 31 facilities in the preliminary development phase and incorporate some recent DLA directed design features in 48 others where design had not yet begun. Further, the addition of specific design features will raise the estimated construction costs of many facilities to over \$200,000, thereby requiring congressional authorization. According to DRMS officials, the combination of these events could delay the scheduled construction of many storage facilities.

**DRMS Will Reevaluate the
Size of 31 Storage Facilities**

In June 1984 DOD established a 60 calendar day requirement for the disposal of hazardous waste after its receipt by a property disposal office. This requirement was made to assure better disposal service and to save construction dollars. To reduce construction cost, DRMS changed its design criteria to recognize a shorter length of time that waste would be stored before disposal. As a result, DRMS is reevaluating the size of each of the facilities in preliminary development. DRMS engineers stated the reevaluation would delay those facilities in preliminary development for several months. As of February 1985, 31 facilities were in preliminary development.

**DLA-Directed Design
Changes May Delay
Construction of 48 Facilities**

On February 22, 1985, DLA directed DRMS to incorporate additional design features into all facilities where design had not yet begun. This was done to reduce the likelihood that hazardous waste would be released into the environment and to increase the safety of workers. These additional features included

- the use of expensive explosion proof electrical systems throughout the facility instead of in specific areas of the storage facility,
- more individual storage areas with their own walls and doors, and walls and ceilings of all storage areas (including exterior perimeter walls) will have fire-rated walls, doors, louvers, and vents, and
- a separate ventilation system for each of the several additional storage areas and every closet and aisle.

DRMS' impact analysis of these design changes showed they would cause a 25-percent increase in the size of a storage facility and increase the construction cost per square foot by an estimated 90 percent. Also, DRMS estimated that the total cost for the 48 facilities¹ would double. As a result, DRMS estimated these additional design features plus inflation since original estimates were prepared would cause the cost of 48 facilities to increase sufficiently to require congressional authorization, i.e., estimated cost went from less than \$200,000 to over that amount.

Since the 48 facilities would require congressional authorization, DRMS estimated final construction of each facility would be delayed 2 to 3 years with most being built in fiscal years 1989 and 1990. The DRMS

¹This includes facilities where preliminary development had been completed but design not yet begun.

impact analysis commented that vulnerability to regulatory RCRA violations, fines, delays in getting facilities in operation, and complaints from the services were inevitable.

The Services Are Building Storage Facilities Rather Than Waiting for DRMS

The services assumed that, with DRMS responsible for storing and disposing of certain categories of waste, installations would eventually need storage facilities only for those wastes for which they retained responsibility. However, they were to temporarily store DRMS assigned waste until DRMS constructed its own facilities. Since DRMS has constructed few storage facilities, many installations have constructed or plan to construct their own storage facilities and upgrade existing facilities to comply with RCRA requirements.

Installations Store Most Waste Assigned to DRMS

In 1984, according to data reported to DOD, installations transferred over 32,000 tons of waste to DRMS for disposal. Physical custody was retained by the installations for over 21,000 of the 32,000 tons, or 67 percent, because the DRMS property disposal offices had insufficient storage facilities. Figure 4.1 shows hazardous waste at the Alameda Naval Air Rework Facility awaiting shipment to the Defense Reutilization and Marketing Office (DRMO) for disposition. The extent to which installations of the respective services retained custody and stored the waste varies. As shown in table 4.2, the range was from a high of 97 percent for Navy installations to a low of 6 percent for the Marine Corps.

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**Figure 4.1: Hazardous Waste
Improperly Stored at Alameda Naval Air
Rework Facility Awaiting Shipment**



**Table 4.2: Waste Transferred to DRMS
for Disposal in 1984**

Service	Total transferred (tons)	Stored by installations (tons)	Percentage stored by installations
Army	9,500	8,000	84
Navy	10,000	9,700	97
Air Force	7,100	3,100	44
Marine Corps	4,900	300	6
DLA	500	300	60
Total	32,000	21,400	67

Installations Are Constructing New Storage Facilities to Assure Compliance With RCRA

The services have generally been critical of the time taken by DRMS to construct storage facilities to house its assigned hazardous waste. To insure waste, including that assigned to DRMS, is stored in facilities that meet RCRA design requirements, installations have constructed new facilities and plan more in the near future.

In a December 1983 memorandum to the Chief of Naval Operations, the Commander of the Naval Facilities Engineering Command stated the way DLA was accomplishing its hazardous waste mission was unsatisfactory, in part, because few hazardous waste storage facilities had been completed. The Commander said the Navy had been required to construct its own facilities to comply with RCRA requirements. In March 1985, a Navy official informed us the Navy, in the past few years, had constructed new storage facilities at several installations to store DRMS assigned waste as well as its own. For example, he said the Naval Station, Mayport, Florida, built a facility so that DRMS waste could be stored in accordance with RCRA, and the Naval Air Station, Cecil Field, Jacksonville, Florida, built a facility because it preferred not to wait any longer for the DRMS facility. DRMS cancelled its proposed facilities at both locations when informed the Navy had built its own. We found neither DRMS proposed facility had advanced to the design state at the time the Navy decided to build its own facilities.

The Navy official also informed us of 19 more storage facilities, costing about \$6 million, which are planned for construction in the near future because DRMS was too slow in constructing its own. He stressed that the Navy is responsible for its installations complying with RCRA requirements. He also stated that the Navy is not undergoing a massive program to provide facilities to store hazardous waste, but that the Navy prefers faster disposal of waste so fewer storage facilities would be needed.

The Army is also constructing its own storage facilities. An official of the U.S. Army Materiel Command informed us the command spent about \$940,000 to construct or upgrade 19 storage facilities in 1982, 1983, and 1984 to conform to RCRA storage facility requirements. He said seven new storage facilities were constructed during this period at a cost of about \$680,000. The remaining \$260,000 was spent on upgrading facilities, that is, installing curbing, sealing concrete floors, installing wall dividers to separate incompatible wastes, etc. According to this official, the new storage facilities are used to store hazardous wastes for which DRMS has responsibility. Figure 4.2 depicts a hazardous waste storage facility built by the Sacramento Army Depot.

Figure 4.2: Hazardous Waste Storage Facility Built by the Sacramento Army Depot



The Deputy Assistant Secretary of the Air Force for Installations, Environment and Safety suggested to the DOD Director for Environmental Policy in November 1984, that, if construction of DRMS storage facilities is not imminent, consideration should be given to transferring the funds to the services so they can design and construct the needed facilities. Specifically, he stated DRMS had continually deferred building scheduled storage facilities and was unable to provide facility descriptions for installation review. This, he said, indicated little or no progress in the DRMS construction program.

The Deputy noted that, had responsibility for construction of storage facilities not been transferred to DRMS, the Air Force would have constructed the necessary facilities by November 1984. He further stated, that while the Air Force facilities may have been more austere than the facilities proposed by DRMS, they would have met RCRA requirements and facilitated Air Force compliance. He summed up his comments by saying the critical problem encountered from the DRMS storage facility program was the continued failure to provide adequate storage facilities to protect DOD personnel, the public and the environment.

According to an official of the Air Force Logistics Command, the Air Force had spent at least \$575,000 from 1982 through 1984 to construct or upgrade storage facilities to comply with RCRA requirements. Of that amount, over \$500,000 went to construct eight new storage facilities. In addition, about \$670,000 will be spent in the next few years to build five

more storage facilities. All these actions, he stated, have been or are being taken because DRMS has not constructed the facilities it proposed at Air Force bases.

DLA/DRMS Proposed Actions

DLA and DRMS have initiated several actions which they believe will enable DRMS to reduce the time needed to construct storage facilities. To speed up constructing facilities, the Army Corps of Engineers will develop and construct 28 facilities. The Corps of Engineers is also developing a standardized storage facility design for DRMS. DRMS officials stated all future designs will conform to the standardized version which will reduce the time normally required for the preliminary development and design phase.

Once the Corps of Engineers develops the standardized facility design, DLA officials stated, they plan to meet with EPA officials to obtain their agreement that the standardized design meets RCRA requirements. They hope to work out an interim agreement with EPA whereby DRMS could quickly obtain EPA/state agency approval to construct facilities that are consistent with the standardized design. DRMS officials stated such an agreement could significantly reduce the time between design and beginning of construction.

In April 1985 DLA requested the assistance of DOD to obtain a block of funds for hazardous waste storage facilities without designation of specific facilities. This request was made because the DLA-directed design features caused the estimated cost of many proposed facilities to exceed \$200,000, therefore, requiring congressional authorization. DLA stated that obtaining legislative approval for a block of funds for facilities costing over \$200,000 would allow greater flexibility in shifting among facilities to ensure those ready to build are not delayed for lack of programmed funds.

In commenting on a draft of this report, DOD stated that DLA is undertaking other important initiatives to expedite construction. These include the development of a legislative proposal to allow construction of storage facilities prior to issuance of the RCRA permit. The two legislative proposals, according to DOD, are particularly critical to DLA's schedule for constructing facilities in the fiscal year 1987-1989 time frame and, if approved, will enable DLA to accomplish the program as planned. DOD stated that DLA schedules are dependent on favorable action by the Congress.

DOD Actions

The Director of Environmental Policy stated storage facilities meeting RCRA requirements are crucial to bringing many installations into compliance with RCRA and time is of the essence. He stated the March 1985 proposed revised policy for the management of hazardous waste should expedite construction of hazardous waste storage facilities. The proposed policy was adopted by DOD on July 5, 1985.

As stated in chapter 3, DOD is reviewing several issues that it believes must be resolved prior to issuing guidance that implements the new policy. Among the issues, according to DOD, are (1) whether waste management and regulatory responses would be more efficient and accountability clearer if DLA's interface with the regulatory requirement were conducted without an installation as intermediary and (2) how to continue to expedite storage facility planning, programming, and construction. Pending resolution of these issues, there are indications that the services will exercise their authority and flexibility to expedite construction of hazardous waste storage facilities. For example, the Director of Environmental Policy in his August 15, 1985, presentation to the services and DLA stated that a legitimate storage need exists for hazardous waste but the location, size, and number of facilities may change based on the services' implementation of the new policy. In meetings related to developing the guidance to implement the new policy, the Air Force stressed the need for expediting construction and offered to assist with construction. Although the Navy expressed an interest in using DLA services to dispose of waste, it may make the installations responsible for storage. Further, the Navy pointed out that expedient operations could eliminate the need for storage facilities at certain installations.

Conclusions

DRMS efforts to design and build hazardous waste storage facilities has had limited success in meeting the needs of the DOD installations. This has resulted in some installations either being in violation of RCRA requirements or having to build their own storage facilities to avoid violations. We believe the new DOD policy, when implemented, will expedite construction of hazardous waste storage facilities by giving the services and their commands and installations greater authority and flexibility to construct such facilities.

This change, coupled with the services and their commands and installations being given maximum authority and flexibility to dispose of waste (as discussed in chapter 3), may also result in smaller and fewer storage facilities being constructed. For example, if an installation can dispose of its hazardous waste in 90 days or less, RCRA regulations for the design

of storage facilities are not applicable. As a result, the installations could opt not to build such a facility. If the installation prefers to build a storage facility meeting RCRA regulations even though it can dispose of its waste within 90 days, it may be able to meet its storage requirements with a facility smaller than DRMS planned.

While the policy stresses maximum authority and flexibility for the services, commands, and installations in managing hazardous waste to meet RCRA requirements, the selection of certain issues for resolution prior to issuing implementation guidance implies that the storage responsibility could be given to DLA which would split the responsibility for hazardous waste management. This could be inconsistent with the thrust of the policy to provide the services, commands, and installations maximum authority and flexibility for managing and disposing of hazardous waste.

DOD Comments and Our Evaluation

DOD generally agreed with our proposal, contained in a draft of this report, to finalize and implement the proposed policy. It is now developing implementing guidance on hazardous waste storage facilities. DOD comments related to our findings on hazardous waste storage facilities and our evaluation of the comments have been incorporated where appropriate in the chapter.

See page 63 for our recommendation concerning the new policy implementation.

DOD Needs to Place Greater Emphasis on Treatment of Hazardous Waste to Reduce the Quantity Requiring Disposal

In 1980 DOD established a policy to reduce the volume of hazardous waste requiring disposal. By reducing the volume of hazardous waste requiring disposal, DOD reduces (1) the potential for contamination that could adversely affect the public health and the environment and (2) the requirements for more storage space. Another benefit is the reduction in DOD's potential long-term liability for sharing in the future costs of cleaning up the environment.

One of the ways to reduce the volume is to treat hazardous waste so that a smaller amount of residue remains hazardous and requires disposal. The treatment methods used by DOD include processing wastes through industrial waste treatment plants and recycling. The services have built these treatment plants to process the millions of gallons of water contaminated with hazardous wastes primarily from its industrial-type manufacturing operations. Recycling, in essence, refers to recovering and reusing used solvents. Recycling can be accomplished by cleansing impurities from the solvents so it can be reused for its original purpose, selling or receiving credit from solvent reprocessors, and by using solvents as a fuel supplement.

At 4 of the 14 installations visited, we found that, although the industrial waste treatment plants had unused capacity, wastes similar to those being treated in these plants were being contracted for disposal off base. With minor equipment modifications, wastes at these four installations could be treated with a total cost reduction of up to \$127,000 in the first year and about \$276,000 annually thereafter.

In January 1984 DOD established the Used Solvent Elimination (USE) program to assure that its 1980 policy to reduce the volume of hazardous waste was carried out. The services have implemented the USE program and expect it to be fully operational at the larger generators before October 1986. This program requires recycling of solvents with the goal of eliminating the disposal of all solvents by October 1986. We found a potential for increased recycling of solvents at the 14 installations we visited—about 401,000 gallons annually. We did find some limited recycling efforts at four installations but they were on-going prior to the USE program.

DOD's goal is to eliminate disposal of untreated hazardous waste by 1992. Although DOD has not initiated specific programs to achieve this goal, its Director of Environmental Policy advised us that this goal is the driving force behind many DOD initiatives to reduce the volume of hazardous waste. As part of the policy change discussed in chapter 4, the service

commanders and their installations would be required to prepare and implement a plan for reducing generated hazardous waste.

Greater Use Can Be Made of Industrial Waste Treatment Plants

The use of industrial waste treatment plants to treat water contaminated with hazardous wastes can reduce the volume of this type of waste by over 90 percent. Nine of the 14 installations we visited had such plants, and 7 plants were being used at less than capacity. Further, at four installations, hazardous waste similar to that being treated was being disposed of off-base. These wastes could be processed through the treatment plants with limited additional investment in equipment. The potential savings in the first year, after considering additional equipment needs for other processing procedures, could be as much as \$127,000, and up to \$276,000 in each subsequent year.

Most Treatment Plants Were Underutilized

The seven plants with excess capacity had a combined annual capacity of about 798 million gallons, but the annual usage in 1984 was about 454 million gallons, 57 percent of capacity. As shown in table 5.1, the usage rate ranged from 33 to 88 percent at the individual installations.

Table 5.1: Treatment Plant Annual Capacity and Usage

Thousands of Gallons			
Installation	Capacity	Usage	Rate
Tinker Air Force Base	375,000	187,500	50
Marine Corps Air Station, Cherry Point	150,000	62,500	42
Naval Air Station, Corpus Christi	125,000	100,000	80
Anniston Army Depot	62,500	55,000	88
Mare Island Naval Shipyard	37,500	30,500	81
Naval Air Development Center	30,000	12,500	42
Sacramento Army Depot	18,125	6,050	33
Total	798,125	454,050	57

Four of the seven installations were contracting in 1984 to dispose of waste which was similar to the waste they were treating. At two of the installations, consideration was being given to using the plants to treat wastes other than those generated by the operational processes for which the plants were built. As shown in Table 5.2, about 616,000 gallons of similar waste were contracted for disposal at a cost of about \$276,000.

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Table 5.2: Hazardous Waste Contracted for Disposal

Thousands of Gallons			
Installation	Annual unused capacity	Similar waste contracted annually	Estimated annual disposal costs
Tinker Air Force Base	187,500	487	\$192,000
Anniston Army Depot	7,500	47	29,000
Mare Island Naval Shipyard	7,000	17	29,000
Sacramento Army Depot	12,075	65	26,000
Total	214,075	616	\$276,000

There is also potential for wastes from nearby bases to be treated at certain facilities. The feasibility of this was demonstrated by two recent studies at DOD installations showing that certain types of hazardous waste being contracted for disposal could be treated at nearby industrial waste treatment plants at a savings to DOD.

A Naval Facilities Engineering Command funded study of the treatment plant at the Pearl Harbor Naval Base, Hawaii, showed that, in 1983, the Defense Reutilization and Marketing Office disposed of about 21,000 gallons and 89,000 pounds of wastes including acids, alkalies, and chromates at a cost of about \$176,200. These wastes had been collected from several generators located near the naval installation. According to the study, the 89,000 pounds of solid waste could be converted to about 64,000 gallons of liquid and, along with the other 21,000 gallons of liquid, processed through the industrial waste treatment plant, which was only 50 percent utilized. The study concluded that processing these wastes at the treatment plant would have reduced the volume of waste requiring disposal at an estimated savings of \$48,000.

Similar findings were reported in a 1985 DOD funded study that showed the Tooele Army Depot in Utah annually generated about 130,000 gallons of hazardous wastes, mainly acids or alkalies with metal contaminants, and traditionally disposed of such waste through a contractor. Based on recent contract prices, it was estimated that the annual disposal costs would be about \$141,700. The study showed these wastes could be treated at the nearby Hill Air Force Base industrial waste treatment plant at an estimated cost of \$97,400, a savings of \$44,200 or 31 percent of the estimated disposal cost. The estimated cost to treat the waste included the cost of transportation (58 cents/gallon), treatment (one cent/gallon), and disposal of the residual waste (6 cents/gallon).

Some Capital Expenditures May Be Required to Increase the Use of Treatment Plants

Although greater use can be made of industrial waste treatment plants, some capital expenditures may be required before additional quantities of wastes can be treated. As shown in the following examples, however, the future savings appears to justify the additional costs.

While the Anniston Army Depot would need to purchase some equipment to treat the additional wastes, the savings in disposal costs for one year will at least equal capital expenditures. In 1984, Anniston disposed of 46,700 gallons of waste which prior to disposal was stored in large tanks connected directly to the various treatment processes within the industrial waste treatment plant. The waste in the tanks was not pumped into the treatment processes because the high flow rate of the tank pumps would have increased the concentration of waste beyond the design capabilities of the treatment processes. This installation now plans to purchase pumps with lower flow rates to properly control the flow of waste into the processes. We estimated that treatment of this waste would eliminate current annual disposal costs of \$29,000. A depot official said the savings of \$29,000 in one year would more than offset the cost of purchasing and installing the pumps.

At the Sacramento Army Depot, installation officials estimate that it would cost about \$120,000 for the necessary equipment, including storage tanks, to process the additional 65,000 gallons of waste that are now being disposed of. Installation officials expect the annual generation of the 65,000 gallons to continue and the disposal costs to increase to about \$120,000 in 1987. Therefore, the reduction in disposal costs in one year would equal the cost of the additional equipment.

The operational and maintenance costs to treat the additional quantities of hazardous waste at any of the treatment plants, if any, should be minimal because the additional waste to be treated on a daily basis is small. At the Anniston Army Depot, for example, the 46,700 gallons equate to about 187 gallons daily or less than one-tenth of one percent of the 220,000 gallons of wastes being treated daily. At Tinker Air Force Base, the daily increase would be about 1,948 gallons or three-tenths of one percent of the wastes being treated daily at the plant.

DOD Plans to Encourage Greater Use of Industrial Waste Treatment Plants

The DOD Director of Environmental Policy agreed that industrial waste treatment plants can be used to a greater extent to treat waste and thereby reduce the volume of wastes requiring disposal. However, the Director said generators have no incentive to seek the least costly method of disposing of hazardous waste because DRMS pays for the costs

of disposal while the generator pays the cost of treatment. He stated that the new DOD policy on hazardous waste provides the necessary incentive to generators to seek less costly methods of disposal by requiring generators to fund disposal of hazardous waste. At the same time, he stated, DOD is considering wide dissemination of the results of the Pearl Harbor Naval Base and Hill Air Force Base studies as a means to educate the generators on less costly ways to dispose of hazardous waste which he hopes will encourage them to seek out and use nearby treatment plants where feasible.

Used Solvent Elimination Program

DOD established a Used Solvent Elimination (USE) program in January 1984 to eliminate the disposal of solvents by recovering and recycling them. The USE program goal to eliminate the land disposal of solvents is important because RCRA, as amended in 1984, generally bans the land disposal of hazardous waste, including solvents, beginning in late 1986. Also, these amendments require installations to have a waste reduction program. Effective September 1, 1985, documents authorizing the transport of waste to a designated treatment, storage, or disposal facility must contain a certification that the generator has a program to reduce the volume and toxicity of such waste.

Our review showed that 4 of the 14 installations we visited recycled about 490,000 gallons of solvents in 1984. We also found that an additional 401,000 gallons of similar or the same type of solvents could have been recycled at 13 installations. All of the recycling efforts identified were initiated before the USE program was established.

Studies Showed the Potential for Recycling Used Solvents

DOD established the USE program to assure that its policy to reduce the volume of hazardous waste is carried out. As defined under the USE program, recycling of solvents refers to recovering and reusing them. Recycling can be accomplished by cleansing impurities from the solvents so they can be reused for their original purpose, used as a fuel supplement, or sold for cash or credit from solvent reprocessors.

DOD initiated the USE program following the issuance of a DOD Inspector General report and a DRMS study which showed that improvements were needed in solvent disposal practices. The Inspector General report and the DRMS study showed that generators could economically recycle waste solvents which represented a major portion of DOD's annual hazardous waste.

The Inspector General's report, issued in early 1984, covered the recycling activities of 34 installations during 1982 and 1983. According to the report, 12 of the installations, or 35 percent, were recycling used solvents. Nine of these 12 installations reclaimed, through recycling, 496,000 gallons of solvents—about 25 percent of the solvents they used in fiscal year 1982—for a savings of about \$1.9 million when compared to the cost of new solvents. The other 3 installations saved about \$80,000 in fuel costs by using 67,000 gallons of used solvent as fuel oil. The Inspector General concluded that solvent recycling could result in substantial savings through cost avoidance for new solvent and fuel oil and cost avoidance for disposal of used solvents. DOD program documents specifically cited this study as a reason for establishing the USE program.

A separate study funded by DRMS showed there was a strong potential to recycle solvents in DOD. This study resulted in a February 1983 report that said (1) state-of-the-art distillation equipment for recycling solvents was readily available, (2) payback of the initial capital investment for equipment in most cases could be achieved in less than one year, and (3) an estimated \$10.3 million could be saved in procurement and disposal costs annually by DOD through recycling used solvents.

Although this study did not show the volume of solvents used within DOD, a subsequent Army report in December 1983, noted that the Army used at least 2.3 million gallons of solvents in the continental United States during the year ended November 30, 1982. This amount excluded local procurement or bulk purchases by some of the heavy solvent users. Also, a literature search by the Army identified a previous survey of five large Navy generators that showed they used more than 1.1 million gallons of solvent annually, and that at least 87 percent of those solvents could be recycled at an annual savings of more than \$1 million.

Some Generators Are Recycling Solvents but More Can Be Done

Generators at 4 of the 14 installations we visited had recycled about 490,000 gallons of solvents in 1984. These efforts were undertaken prior to the beginning of the USE program. Details applicable to the four installations recycling used solvents follow.

The Anniston Army Depot has been recovering and reusing about 25,000 gallons of solvent annually as a fuel supplement for use in its boilers. This practice reduced its annual fuel cost in 1984 by about \$25,000. We also estimate that it avoided \$56,000 in disposal costs. In

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addition, this depot also has a distillation unit at solvent vats which continuously recycles solvents. Therefore, the only hazardous waste requiring disposal from the use of solvents at the depot is sludge, the residue from recycling.

- Mare Island Naval Shipyard recycled about 3,000 gallons of solvent for a savings of \$31,000 in procurement costs and \$6,000 in disposal costs.
- Kelly Air Force Base contracted for the recycling of about 59,000 gallons of solvents for a savings of \$54,000 in procurement costs and \$81,000 in disposal costs. In addition, the base shipped about 400,000 gallons of solvents to the Department of Energy for use in an alternate fuel program.
- Naval Air Station, Alameda recycled over 2,000 gallons of solvents for an estimated savings in procurement and disposal cost of \$13,000.

Our review of records available at the 14 installations indicated that 13 installations dispose of an estimated 401,000 gallons of waste solvents annually that could be recycled. Three of these installations were already recycling solvents, namely, Kelly Air Force Base; Naval Air Station, Alameda; and Mare Island Naval Shipyard. The annual volume of solvents that could be recycled at each of the 13 installations is shown in table 5.3. In each instance, the annual volume exceeds the minimum amount that DOD considers economically feasible to recycle.

**Table 5.3: Estimated Volume of
Recyclable Solvents**

Installation	Gallons
Marine Corps Air Station, Cherry Point	111,000
Tinker Air Force Base	53,000
Naval Air Station, Alameda	48,000
Kelly Air Force Base	47,000
Naval Air Station, Corpus Christi	47,000
Philadelphia Naval Shipyard	42,000
Mare Island Naval Shipyard	28,000
Naval Air Engineering Center	8,000
Randolph Air Force Base	6,000
Bergstrom Air Force Base	4,000
Navy Ships Parts Control Center	3,000
Sacramento Army Depot	3,000
Naval Air Development Center	1,000
Total	401,000

The Services Have Implemented the USE Program

The services began implementing the USE program in July 1984. Consistent with the program guidance provided by DOD, the services are initially concentrating their efforts on those installations which use large quantities of solvents. Actions being taken at various levels within the services include (1) identifying the quantities of solvents that can be recycled, (2) identifying equipment requirements, (3) determining equipment costs, (4) preparing and publishing technical guidance, and (5) establishing program plans with goals and milestone dates. Each of the services plan to have their program fully operational at the larger generators before October 1, 1986.

DOD Proposes Eliminating the Disposal of Untreated Hazardous Waste by 1992

DOD's new policy states, among other things, the DOD goal is to eliminate the disposal of untreated hazardous waste by 1992 through waste minimization, treatment, and recycling. DOD's Director of Environmental Policy informed us that the basic objectives of the policy are to improve compliance with RCRA and to avoid any possible long term liability associated with disposal of hazardous waste in landfills. This long term liability relates to the possibility that DOD could be fully or partially responsible for any future costs to clean up the landfills where its wastes were deposited.

The Director stated that although DOD has not developed a detailed plan with specific programs to achieve the 1992 goal, these objectives are a driving force behind many DOD initiatives. He believes the aggregate results of the initiatives in the future should go far toward meeting the expressed goal. The Director cited the greater use of industrial waste treatment plants and the USE program as two of the initiatives.

DOD also has a project on industrial process modification which, according to the Director, has waste minimization as its objective. He specifically cited two examples under this project that should reduce hazardous waste when more installations are made aware of the processes and implement them. In one instance, the paint stripping process normally used by the Air Force for aircraft was producing 20,000 gallons of hazardous waste per aircraft. Removal of paint using a plastic bead blasting process produces only 100 pounds of dry waste. When this process is implemented throughout DOD, it is expected to avoid the generation of millions of gallons of hazardous waste and save over \$100 million annually in operating and waste disposal costs. The other example cited was the Anniston Army Depot's filtering system which is

attached directly to chemical baths used in plating operations. The filtering system cleanses impurities from the plating baths so they can be reused, thereby precluding disposal.

Other initiatives in the near future, according to the Director, will include exploring the use of incinerators and requiring disposal contractors to treat all DOD generated hazardous waste as opposed to using landfills. The Director stated that treatment is the preferred method for disposing of hazardous waste, but there will always be some residue from treatment processes.

Conclusions

The objectives of reducing the volume of waste requiring disposal are to improve compliance with RCRA, reduce the potential for contaminating the environment, and to avoid any potential long-term liability for sharing the costs of cleaning up the environment. Some installations have reduced their volume of waste, but more can be done to avoid land disposal of hazardous waste such as using excess treatment plant capacity to handle additional quantities of waste being disposed of from the same or nearby installations. Another way to reduce the volume of waste requiring disposal is for the installations to participate more fully in DOD's USE program. Although the services have implemented the USE program, which was established in January 1984, and some installations were recycling solvents, none of the installations we visited had increased the amount of solvent recycling as a result of the USE program.

We believe the USE program goal to eliminate the disposal of solvents is important because RCRA, as amended in 1984, generally bans the land disposal of hazardous waste, including solvents, after late 1986. A strictly enforced ban on land disposal of solvents coupled with less than complete recycling of solvents may cause some DOD installations to temporarily store large quantities of solvents pending recycling. This situation could pose a serious threat to the environment since, as noted earlier in this report, the installations frequently lacked adequately designed storage facilities for hazardous waste.

The DOD goal to eliminate the disposal of untreated hazardous waste by 1992 is to be accomplished through a rigorous program of waste minimization and emphasizing treatment and recycling over disposal. Although DOD has not developed a detailed plan for accomplishing the 1992 goal, the new policy does require installation commanders to prepare and implement plans to reduce the volume of hazardous waste. We believe this requirement will increase the visibility of programs aimed at

reducing the volume of waste and create more emphasis on such programs. Such additional attention, in our opinion, should speed up the operational status of the USE program and process changes.

To minimize future program costs, existing and planned treatment facilities should be used to the greatest extent possible regardless of ownership. In our opinion, inter-service agreements which call for inter-service coordination and cooperation at all levels of management, especially among the installations in the same geographical area, would facilitate greater use of treatment facilities.

DOD Comments and Our Evaluation

DOD concurred with our proposals, contained in a draft of this report, to require specific plans for waste reduction from the services and their commands and installations and maximum possible utilization of industrial waste treatment plants. DOD stated it will incorporate requirements on both matters into the DOD directive to be issued in July 1986.

DOD officials agreed with the facts presented in this chapter except that they did not share our concern over potential solvent storage problems, at least not as much as for other hazardous waste, as solvent recyclers are rapidly developing capability to handle such wastes. DOD's comments relating to our findings and our evaluation of such comments are incorporated, where appropriate, in the chapter.

Recommendation

We recommend that the Secretary of Defense monitor the implementation of the new policy to assure that in practice it succeeds in providing the services, commands, and installations with the authority and flexibility needed to accomplish DOD's goals and the requirements of RCRA with regard to the generation, storage, and disposal of hazardous waste.

Overview of RCRA Requirements and Their Enforcement

Under RCRA, EPA has established regulations for reporting, record-keeping, performance, and facility operations for persons¹ who generate, transport, or own or operate a treatment, storage, or disposal facility. Generators of threshold quantities of hazardous waste must comply with requirements for analyzing wastes to identify those that are hazardous; proper recordkeeping and reporting; and the use of proper containers and container labels. Also, they must use a manifest system (signed and documented shipping papers) to transport waste from point of generation to the designated treatment, storage, or disposal facility. EPA regulations permit generators to accumulate waste on site for up to 90 days (with certain extensions) without a storage permit prior to shipment.

RCRA requires that any person owning or operating a facility where hazardous waste is treated, stored, or disposed of must obtain a permit from EPA or an authorized state agency. The act prescribes a procedure whereby facilities in operation or under construction on or before November 19, 1980, may continue operating under an interim status permit until a final hazardous waste permit is issued or denied. Facilities with this permit status must comply with interim status regulations established by EPA or authorized states. These regulations include requirements for identification numbers; manifests, recordkeeping, and reporting; preparing for and preventing hazards; groundwater monitoring; facility closure and postclosure care; financial responsibility requirements;² the use and management of containers; and the design and operation of waste storage tanks, surface impoundments, incinerators, and underground injection wells. In addition, the regulations include general requirements for security at facilities, inspection of facilities, and personnel training. Under the 1984 amendments to RCRA, facilities were required to certify compliance with interim status groundwater monitoring and financial assurance requirements and submit final permit applications by November 8, 1985, or cease operations.

After the owner or operator of a facility receives the final hazardous waste permit, the facility must comply with final permit regulations. These regulations incorporate the interim status requirements and

¹EPA regulations define person as an individual, firm, corporation, federal agency, partnership, state, municipality, etc.

²EPA's regulations exclude federal and state hazardous waste facilities from compliance with the financial assurance requirements.

impose additional technical design, construction, and operating requirements.

RCRA Is Administered Primarily by the States

RCRA provides that after authorization by EPA, the states may administer their own hazardous waste programs provided the state's program is at least as stringent and comprehensive as the federal program. The act allows the states to obtain interim authorization from EPA to administer their own hazardous waste programs while working toward final program authorization.

As of January 1986, 51 of 56 states and territories have either been authorized or are working towards final authorization to administer their hazardous waste programs.

Authorized states are responsible for conducting site inspections to enforce RCRA regulations. EPA inspection guidelines through fiscal year 1984 called for inspection of major facilities annually and nonmajor facilities every 2 years. RCRA, as amended in 1984, requires EPA to inspect annually each federally owned or operated treatment, storage, and disposal facility.

Enforcement Procedures Used to Achieve Compliance With RCRA Regulations

EPA and the states have several enforcement options to foster corrective actions when facilities are not in compliance with RCRA regulations. Warning letters or notices of violation are used to notify facility owners/operators of violations and may specify the date by which a violator must achieve compliance. They are generally used for minor violations where voluntary compliance is expected. Administrative compliance orders, issued by EPA or the state agency, require compliance by a certain date, may assess penalties, and are enforceable through administrative or judicial action. Civil actions, and in certain cases criminal litigation, may be pursued directly through the federal courts. Fines or penalties may or may not be sought through these actions.

Federal facilities are not subject to state or local fines and penalties. In addition, the Department of Justice has adopted a policy of not taking judicial action on EPA's behalf against another federal agency over environmental compliance problems. Instead, Presidential directives call for compliance problems to be resolved through administrative procedures within the executive branch.

**Appendix I
Overview of RCRA Requirements and
Their Enforcement**

The enforcement option used to foster corrective actions varies according to the severity of the violation(s) and the compliance history of the permit holder/generator. More severe violations are those that pose direct and immediate threat to public health or the environment. Less severe violations are those procedural or reporting violations which, in themselves, do not pose direct short-term threats to the public health or environment.

Status of Facility Permits at DOD Installations

According to EPA, one of the most important aspects of the hazardous waste regulatory program is the final permit for hazardous waste treatment, storage, and disposal facilities. The final permit requires facilities to comply with more detailed operating and technical design standards than is required for interim status. It is intended to provide greater assurance that the environment is adequately protected. As of 1984, 25 of the 320 DOD installations that may require final permits had received them. Also, some installations have submitted final permit applications for processing. EPA acknowledges that progress has been slow in issuing permits for all facilities nation-wide, and attributes the slow progress to incomplete permit applications, competing priorities, and other factors. Generally, the slow progress is attributable to both applicants and regulatory agencies.

Overview of EPA Permit Process

The final permit process is currently a combined effort of EPA and the states. Most states either have interim authorization to issue permits or are participating in the permit process through cooperative arrangements with EPA. Eventually EPA hopes to assume an oversight role in this area similar to its role in inspection and enforcement activities.

Initially, EPA expected that about 8 months would be required for the final permit process. The general procedures for the permit process follow. After notice from EPA or the state, the facility is given at least 6 months to submit the final permit application. EPA or the state is allowed 2 months to review the application and notify the facility of any deficiencies. After the application is determined to be complete, a draft permit is prepared and 45 days are allowed for written public comment. A public hearing must be held if written notice of opposition to the draft permit is received. After the comment period has closed, EPA or the state responds to comments and issues the final permit decision.

However, the actual permit process takes longer than 8 months. EPA estimated that, based on its experience, the permit process will require 18 months for storage and treatment facilities, 24 to 30 months for incinerators, and 36 to 48 months for land disposal facilities. According to EPA almost all applications submitted through 1983 have been deficient and must be returned to the applicants one or more times. The time it takes to obtain the additional information necessary to complete an application can significantly delay the permit process.

Further, EPA estimated that about 44 percent of the facilities withdrew from regulation or submitted a closure plan after the application was

Appendix II
Status of Facility Permits at
DOD Installations

requested. As a result, EPA and/or the states used their resources for the permit process to review withdrawal¹ requests or closure plans. EPA also estimates that public participation adds 2 to 3 months to the process for all permits and even more time for controversial facilities.

Because of the lengthy permit process, EPA guidance gives priority to those facilities posing the greatest potential hazards to public health and the environment. EPA places the highest priority on calling in permit applications from land disposal and incinerator facilities. Priority is given to these facilities because of their potential to affect the environment and public health through surface and groundwater contamination and air pollution. Storage facilities are generally given least priority. The initial types of facilities requested to submit permit applications were storage and treatment facilities because the applicable final regulations were the first to become effective on July 13, 1981. Since the land disposal regulations became effective January 26, 1983, land disposal facilities have been given permitting priority.

Progress in Obtaining Final Permits for DOD Facilities

As shown in table II.1, DOD records for 1984 showed that 25 of the 320 installations that may require permits had received a final permit.

Table II.1: Installations Requiring
Permits

	Number of installations
Interim status permits	
Requested to submit/have submitted final application	122
Not requested to submit application	173
Subtotal	295
Final permits	25
Total	320

The number of facilities operated by DOD installations and their tenants to treat, store, and dispose of hazardous waste exceed the number of

¹ A withdrawal occurs when EPA or the state approves removing a facility's interim status after a determination that the facility never met the criteria for regulation under RCRA. Typical reasons for allowing a facility to withdraw include not handling hazardous waste since the effective date of the regulations, handling insufficient quantities of waste, or storing waste for less than 90 days.

Appendix II
Status of Facility Permits at
DOD Installations

installations that may require final permits. DOD data shows 637 facilities at the 320 installations, an average of about 2 facilities per installation. We found that the number of facilities at each installation is generally dependent on the quantity and nature of hazardous waste generated and the method(s) selected to handle and dispose of such waste. One installation may have only one facility used to temporarily store hazardous waste. Another installation may have (1) several treatment facilities for industrial type wastes and obsolete and deteriorated ammunition and (2) a storage facility.

The number of facilities that may require permits varies significantly among the services and DLA. The majority of the facilities are for storage of hazardous waste awaiting disposal. Table II.2 summarizes the number and type of facilities that may require permits as of 1984, as reported to DOD by the services and DLA.

**Table II.2: Number and Type of Facility
That May Require a Permit**

Service/agency	Bases that may require permits	Type of facilities			Total
		Treatment	Storage	Disposal	
Army	93	78	226	12	316
Navy	107	28	98	7	133
Air Force	102	36	125	4	165
Marine Corps	12	1	12	0	13
DLA	6	0	10	0	10
Total	320	143	471	23	637

States and Defense Installations Included in GAO Review

State	DOD installations in state subject to RCRA	14 installations GAO visited
Alabama	6	Anniston Army Depot
California	34 ^a	Mare Island Naval Shipyard Naval Air Station, Alameda Sacramento Army Depot
New Jersey	9	Naval Air Engineering Center
North Carolina	5	Marine Corps Air Station, Cherry Point
Oklahoma	5	Tinker Air Force Base
Pennsylvania	13	Philadelphia Naval Shipyard Naval Air Development Center Navy Ships Parts Control Center
Texas	23	Bergstrom Air Force Base Kelly Air Force Base Naval Air Station, Corpus Christi Randolph Air Force Base

^aThe 34 installations are in the northern part of the state. The entire state of California contains 62 DOD installations subject to RCRA.

Comments From the Assistant Secretary of Defense (Acquisition and Logistics)

Note: GAO comment supplementing those in the report text appear at the end of this appendix.



ACQUISITION AND
LOGISTICS

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301-8000

10 JAN 1986

Mr. Frank C. Conahan
Director
National Security and International
Affairs Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Conahan:

Thank you for the opportunity to review the draft report, "Hazardous Waste - New Initiatives Needed At Military Bases In The United States," dated November 7, 1985 (GAO Code 392063/OSD Case 6879). The draft report has contributed to the Department of Defense (DoD) awareness of needs.

The July 1985 hazardous waste policy proposal, referred to in the report, raised a number of issues. Working groups of DoD component representatives are in the process of resolving these issues. The results will be combined into a DoD directive that will set the standard for achieving goals of compliance and minimization. This implementation process will yield a better management framework than issuing the proposed policy as recommended in the draft report, since the proposed policy has been superseded by events.

The new directive will require major generators of hazardous waste to concentrate on minimization through use of less hazardous or non-hazardous materials, process modification, and waste treatment. The Defense Logistics Agency (DLA) will aggressively pursue recycling in the private sector and will continue as primary manager for waste disposal. In addition, the existing DoD regulations requiring DoD components to take action as necessary to comply with the Resource Conservation and Recovery Act will continue in effect. Dual DLA and individual component contracting and storage capability provides the DoD with flexibility to manage hazardous waste in a way that best protects human health and the environment.

This combination of new initiatives and existing requirements will respond to the intent of the GAO recommendations and put the DoD closer to the ultimate goal of eliminating the disposal of untreated hazardous waste.

Sincerely,

A handwritten signature in dark ink, appearing to read "James P. Wade, Jr." with a stylized flourish at the end.

James P. Wade, Jr.

GAO DRAFT REPORT - DATED NOVEMBER 7, 1985
(GAO CODE 392063) - OSD CASE 6879

"HAZARDOUS WASTE - NEW INITIATIVES NEEDED AT MILITARY
BASES IN THE UNITED STATES"

DOD RESPONSES TO GAO FINDINGS AND RECOMMENDATIONS

* * * * *

FINDINGS

- **FINDING A:** The Department Of Defense Is A Large Generator Of Hazardous Waste Required To Comply With The Resource Conservation And Recovery Act. The GAO found that 333 of 888 DoD installations in the United States generated over 530,000 tons of hazardous waste during 1984. GAO reported that there are many types of hazardous waste (i.e., solvents, paints, munitions, metals, fuel and oil) that result from various operations performed at defense installations (i.e., repairs of tanks, planes and vessels, paint shops, fire departments, hospitals, and laundries). GAO also reported that the Congress enacted the Resource Conservation and Recovery Act (RCRA) which provides for regulatory controls over the generation, transportation, treatment, storage, and disposal of hazardous wastes (HW). GAO observed that, because DoD is a generator of hazardous waste and operator of treatment, storage, and disposal facilities, the DoD must comply with RCRA requirements, and each DoD installation is considered a separate entity for regulatory purposes. (pp. 1-4, GAO Draft Report)

DOD RESPONSE: Partially Concur. The DoD does not agree with the implication that the RCRA considers each DoD installation as a separate entity for regulatory purposes. RCRA holds federal agencies which manage hazardous waste responsible for compliance. RCRA implementation sets various standards for those who generate, transport, store, treat, or dispose of hazardous waste. RCRA does not require that each installation be a separate entity. Several contiguous installation can be regulated as one, and more than one RCRA generator or permittee can exist within an installation. The designated RCRA owner or operator of a permitted facility may not be associated with the installation. However, as a management convenience, each installation is usually considered the regulated entity.

ENCLOSURE

Now on pp. 10-12.

- **FINDING B: Department Of Defense Plans For Complying With The Resource Conservation And Recovery Act.** The GAO observed that the Office of the Secretary of Defense develops environmental policy and monitors the Army, Navy, Air Force, Marine Corps, and the Defense Logistics Agency (DLA) programs to carry out policy. GAO reported that, on October 21, 1980, DoD established an overall policy to implement the RCRA regulations published by the Environmental Protection Agency (EPA) in May 1980. Under this policy, DoD installation commanders are responsible for ensuring that all installation operations, including those of defense components located at an installation, comply with all RCRA requirements, according to GAO. In addition, GAO reported that, in January 1984, DoD established a Used Solvent Elimination (USE) Program to eliminate the disposal of recyclable solvents as hazardous waste by October 1, 1986. GAO observed that this program subsequently took on added significance because RCRA, as amended in 1984, generally bans the land disposal of solvents after 1986, unless EPA determines that such a prohibition is not required to protect human health and the environment. GAO also observed that DoD has an environmental management information system to help it monitor installation compliance with RCRA: (1) installation commanders annually report, for example, the status of the installation's solvent recycling program, and the number and nature of RCRA violations cited by EPA or state agencies; and, (2) the Services aggregate hazardous waste data submitted by the various organizations under their jurisdiction and transmit it to the Office of the Secretary of Defense (OSD). (pp. 4-7, GAO Draft Report)

Now on pp. 12-14.

DOD RESPONSE: Concur.

- **FINDING C: Most DoD Installations GAO Visited Were Not In Compliance With RCRA Requirements.** GAO found that 12 of 14 installations it visited were out of compliance with RCRA requirements, as each had been cited by state regulatory agencies for one or more deficiencies under a specific section of regulatory requirements. GAO also found that most (47 of 72) violations at the 12 installations were the most serious type. According to GAO, causes for non-compliance cited by officials of the installations included lack of command level emphasis and inattention to administrative matters by base personnel with regard to effective hazardous waste management. GAO concluded that a recently established DoD policy requiring independent installation audits will disclose the underlying causes for non-compliance. (pp. 11-15, GAO Draft Report)

Now on pp. 18-23.

DOD RESPONSE: Partially Concur. The DoD does not concur with the implication that there are serious, continuing noncompliance problems. The violations noted by GAO were of a transitory nature, and either have been cleared with the State agency or EPA, or a compliance plan is in effect. DoD agrees that execution of administrative requirements has sometimes been incomplete. However, command emphasis on hazardous waste management is quite high. In addition to DoD Directive 5100.50 and DoD Instruction 4120.14, Army regulations AR 200-1 and AR 420-47, Chief of Naval Operations Regulation 5090.1, Marine Corps Order P1100.8B, and Air Force Regulation AF 19-1 require command attention. Demonstrated evidence of this emphasis includes the comments on DoD's proposed policy of March/July 1985, received from all levels of command, from installations to the Commanders of DoD's logistics bases, and from the Assistant Secretaries of the Military Services. Most installations have environmental protection committees chaired by ranking installation officials. The Assistant Secretary of Defense (Acquisition and Logistics) also regularly deals with hazardous waste matters. Finding E gives a specific example of a program designed to increase awareness, and Finding M documents independent compliance actions taken by commands, which also demonstrate emphasis. In addition, during the week of December 9, 1985, the Army held its third world-wide conference on the environment, with an entire day devoted to exchange of information on hazardous waste management. This is typical of intra-service emphasis. DoD also notes that officials interviewed by GAO in two states advised the DoD was ahead of comparable private sector compliance, and the heads of DoD logistics commands have already taken the lead by requiring their installations to develop minimization plans as described in the response to Recommendation 4. These actions demonstrate a positive overall trend of continuing command emphasis on hazardous waste management.

- **FINDING D: Seven States Consider Many DoD Installations Out Of Compliance.** In addition to visiting the 14 installations located in 7 States, GAO asked state regulatory officials about the compliance record for all DoD installations in those states. GAO found that state regulatory officials had inspected 75 of the 95 DoD installations subject to RCRA in those states. GAO also found that the states considered 41 of the 75 installations to be out of compliance with RCRA. According to GAO, causes for non-compliance cited by state officials included lack of command level involvement and emphasis on hazardous waste management, as well as the lack

Now on pp. 23-24.

of installation commander authority over certain base tenants that generate most of the hazardous waste. (pp. 16-17, GAO Draft Report)

DOD RESPONSE: Partially Concur. The DoD agrees that it has not achieved full compliance, and that states are aware of this. DoD notes, however, two states' officials advised the GAO that the DoD is ahead and none advised that the DoD is behind in compliance efforts when compared to similar private entities. DoD has quickly responded to compliance problems as noted in the response to Finding C. DoD does not agree with reported state regulatory agents' views on the causes for DoD non-compliance, and DoD does not agree that command level authority or involvement is lacking. See responses to Findings C and O.

- **FINDING E: Navy Reports That Many Of Its Waste Generators Are Not In Compliance.** The GAO reported that the Chief of Naval Operations, in a December 1984 report, found that 90 percent of the Navy hazardous waste generating facilities reviewed were out of compliance with RCRA. According to GAO, the report summarized on-site reviews of 73 Navy generators of hazardous waste and these represented about 50 percent of the total Navy generators. GAO also observed that the Chief of Naval Operations stated in the report that few of the non-compliance problems were insurmountable, and that active involvement by major commands is essential. (pp. 17-18, GAO Draft Report)

Now on p. 25.

DOD RESPONSE. Concur. As additional information and clarification, the DoD points out that the Chief of Naval Operations (CNO) Compliance Audit resulted in considerable increase in command attention at major command and lower echelon levels. Also, the CNO audits are the kind of independent installation audits that GAO mentions in Finding C.

- **FINDING F: DoD Plans To Improve Its Oversight Of Compliance With RCRA.** GAO reported that, according to the DoD Director of Environmental Policy, DoD was unaware of the overall compliance status of DoD installations because DoD lacked the data necessary to make that determination. To achieve better oversight, GAO found that DoD: (1) established a policy requiring periodic installation audits; and (2) plans to revise its environmental management information system. GAO found that, on January 17, 1985, DoD established a new policy requiring the Services to conduct periodic audits at all installations subject to environmental laws (including RCRA). The GAO observed that DoD intends the use of audits

at installations to offer a means of achieving, maintaining and monitoring compliance with RCRA. GAO also reported that, according to DoD's Director of Environmental Policy, the environmental management information system will be significantly revised and computerized to improve DoD oversight of compliance with RCRA. For example, starting in 1985, DoD will obtain computerized data from EPA on EPA and state inspections of installations (i.e., RCRA violations and types of enforcement). DoD also plans to provide copies of the data to the Services to assist them in monitoring the installations. The GAO concluded that the new DoD policy established in January, 1985, coupled with the revised DoD environmental management information system, should enable DoD to measure the success of a particular program or policy, and should provide DoD with adequate data to monitor compliance by installations in the United States. (pp. 18-23, GAO Draft Report)

Now on pp. 26-28.

DOD RESPONSE: Partially Concur. The Director of Environmental Policy (OASD) currently does not track individual generator or permittee compliance. This responsibility is delegated to the Services and DLA. Should OASD require such information, however, it can be obtained manually from the Services and DLA. OASD is studying how a computerized system could be used to identify trends or patterns of non-compliance, as well as compliance, to monitor overall program implementation. Results of the study are expected about January 1987; however, the OASD does not plan to use the computerized system to monitor individual violations. These will continue to be dealt with by the responsible Service or DLA using the same basic data system.

FINDING G: The Defense Property Disposal Service (DPDS) Needed To Establish An Organization To Contract For Disposal Of Waste. GAO observed that in 1980, when DoD was establishing its overall policy on hazardous waste management, DoD delegated responsibility for disposing of hazardous waste to the DLA under the "single manager concept," which was viewed as the most effective approach to disposal. GAO also observed that the DLA further delegated operational responsibility for hazardous waste disposal to DPDS, which operates many property disposal offices on military installations. (Effective July 1, 1985, DPDS became the Defense Reutilization and Marketing Service.) GAO found that DPDS had to establish an organization to contract with commercial firms for the disposal of hazardous waste. GAO also found that DPDS had awarded one contract by the end of fiscal year 1982, 39 contracts in 1983, and 44 in 1984,

Now on pp. 30-31.

at which time DPDS had contract coverage for all installations. GAO reported that, according to DPDS officials, the agency was unable to award contracts sooner because potential contractor employees were unwilling to move to DPDS Headquarters in Battle Creek, Michigan, and/or believed the positions offered little opportunity for advancement. GAO also reported that DPDS partially solved the problem by locating employees at its Ogden, Utah, regional office in 1981, and at the Columbus, Ohio, and Memphis, Tennessee, regional offices in 1984. (pp. 25-26, GAO Draft Report)

DOD RESPONSE: Concur. As additional information and clarification, until assignment of the mission in 1980, DRMS did not have a procurement/contracting mission. Initially, existing service contracts, established and administered by the Military Services, were allowed to run until expiration. As these contracts were completed, DRMS established new contracts to provide continuing disposal support. Concurrent with this incremental increase in workload, a staff capability was established to accommodate the procurement/contracting mission. Decentralization of the contracting function was accomplished to allow closer coordination between DRMS Regions, the Contracting Officers, and the Military Services.

- **FINDING H: DPDS Disposal Service Frequently Is Not Timely And Reliable.** GAO observed that DoD requires the disposal of hazardous waste within 60 calendar days of its receipt by a property disposal office. GAO found, however, that a December 28, 1984, DPDS report showed 98 of 103 property disposal offices handling hazardous waste had some waste stored over 60 days. GAO also found that contractors contributed to the hazardous waste backlog--GAO analysis of 216 orders issued under 44 contracts awarded in fiscal year 1984 showed: 40 of the 44 contractors, or 91 percent, missed pickup dates on 130 or 60 percent of the 216 orders; and final pickup for the 130 orders were on the average 39 days late, ranging from 1 to 216 days. GAO further found that six of the 14 installations it visited used their own contractor, even though there were DPDS contractors at these installations, when it was believed prompt removal of hazardous waste was necessary to comply with RCRA and/or prevent operational shutdowns. For the remaining eight installations GAO visited, GAO found that the installations relied solely on DPDS to remove wastes, and these installations experienced untimely and unreliable service. GAO also found several Service commands have been critical of DPDS; i.e., hazardous waste was backlogged and DPDS

Now on pp. 31-36.

contractors were not providing timely removal of waste. GAO concluded that DPDS has not provided timely and reliable service for hazardous waste disposal to the installations; as a result, installations violated or risked violating RCRA requirements. To overcome this situation, GAO further concluded that some installations assumed DPDS' disposal responsibility. (pp. 26-31, and p. 36, GAO Draft Report)

DOD RESPONSE: Concur. As additional information and clarification, the 60-day disposal cycle for hazardous waste was implemented in November 1984. During FY 1985, a substantial increase in hazardous waste receipts was experienced. There was a corresponding increase in the volume of hazardous waste disposal transactions. The net result was that the number of Defense Reutilization and Marketing Service (DRMS) activities with hazardous waste backlogs was reduced. Continued emphasis on backlog reduction is being accomplished, and further reductions are anticipated in FY 1986. Two factors which prohibit timely disposal of hazardous waste must be addressed. First, contractors often require identification of waste constituents in greater detail than has been supplied to DRMS. This causes delays because of the need for contractor analysis. Secondly, industry capacity has had an adverse impact on the DRMS disposal capability. DRMS, in response to these problems, recently hosted a Hazardous Waste Industry Seminar, which resulted in a better dialogue with the disposal industry and identification of several options to resolve contracting issues relating to timeliness and reliability of disposal service.

- **FINDING I: Procurement Management Review Surfaces Many Problems.** GAO observed that in August 1984, a DLA review team conducted an on-site review of DPDS contracting operations. According to GAO, the review team surfaced several conditions that contributed to the waste disposal problems encountered by DoD installations, and these conditions were mostly attributed to inadequate staff, but other contributing factors were inadequate working space and computer and telecommunication capabilities. According to GAO, examples of waste disposal contract problems shown in the DLA report were: delayed contract awards due to inadequate staff; acute backlog in the Spring of 1984 in requests for orders to remove waste due to a serious manpower shortage; termination of contracts for default due to contractor financial problems, failure to perform, and violation of EPA/state regulations; and DPDS contracting personnel being moved from area to area to work on the "hottest" projects with the result that their normal

Now on pp. 36-37.

assigned workload was put on "hold." The GAO reported that the DLA review team recommended the DPDS be allowed sufficient time, probably three years, to develop its own internal pool of trained contracting personnel, rather than removing the DPDS contracting responsibility. (pp. 32-33, GAO Draft Report)

DOD RESPONSE: Concur. As additional information and clarification, since the time of the DLA on-site review identified in the finding, DRMS contracting received another on-site review by DLA headquarters personnel in November 1985. The findings of this review resulted in a recommendation for more decentralization of some aspects of the contracting process. A significant shortfall of personnel still exists, but DRMS has reassigned workload to alleviate this problem. A hiring plan to fill vacancies at the regional offices (Columbus and Memphis) exists, which has an estimated completion date of March 1986. The remainder of the three year time frame for internal development of the contracting function at DRMS is still needed, as recommended by the DLA review of August 1984.

- **FINDING J: DPDS Planned Actions And Comments.** According to GAO, DPDS officials planned to take a number of actions that would reduce the current backlog and prevent future backlogs due to poor contractor performance, but DPDS officials told GAO it would take considerable time to hire and train the additional staff needed to implement the actions. DPDS officials told GAO they planned to: systematically monitor contractor pickups to identify backlogs sooner; make a greater effort to avoid contractors with the potential for marginal or poor performance through improved preaward evaluations; have future contracts contain provisions to fine contractors for making late pickups; and require contractors to have performance bonds. GAO concluded that these planned DPDS procedural changes can not be implemented until additional staff are hired and trained. (pp. 33-35, and p. 37, GAO Draft Report)

Now on pp. 37-41.

DOD RESPONSE: Concur. As additional information and clarification, DRMS has implemented initiatives to stimulate better contractor performance and to more intensively manage hazardous property inventories. Examples of these initiatives are initiation of pre-solicitation meetings to enhance contract development, and the restructure of contract clauses to eliminate perceived ambiguities. These actions were implemented within the present personnel configuration. several other initiatives are being assessed

during FY 1986 (e.g., incentive clauses, multi-year contracting, and a provision for liquidated damages). Staffing levels have been increased and greater progress will be realized as more experience is gained by staff members.

- **FINDING K: DoD Actions.** In discussing its review of DPDS' disposal service with the DoD Director of Environmental Policy, GAO identified potential adverse effects due to the undependable disposal service and the split of responsibilities under the DoD hazardous waste program. Specifically, installation commanders, who have responsibility for meeting RCRA requirements, can incur RCRA violations when the DPDS, which has responsibility for waste disposal, fails to do so in accordance with RCRA requirements. As a result, installations' efforts, resources and contracts to dispose of waste duplicate DPDS' efforts, resources and contracts. Subsequent to the discussion with the Director, GAO observed that on March 11, 1985, DoD issued a proposed revised policy giving installation commanders authority to contract for disposal of waste, on their own or through DPDS, and to pay the disposal costs. GAO also observed that on July 5, 1985, DoD issued a policy memorandum adopting the above proposed policy change, and that this memorandum is a part of DoD's final process in adopting policy statements. However, as of October 18, 1985, the policy had not been formally issued. GAO concluded that the policy statement will resolve the installations' waste disposal problems in a more expeditious manner than DPDS' planned actions (as discussed in Finding J). GAO further concluded that the policy will give installation commanders control over the timeliness and reliability of waste disposal, which should translate into better compliance with RCRA. In addition, GAO concluded that funds normally needed for disposal could be used to purchase and maintain equipment to treat and recycle waste; that this would result in reduced volume of hazardous waste being disposed of; and that this could improve the installations' compliance with RCRA regulations. (pp. 35-37, GAO Draft Report)

DOD RESPONSE: Partially Concur. As discussed in the response to Recommendation 2, the DoD concurs that the March/July 1985 policy proposal, as revised after Service Secretariat reviews, should be finalized and that its implementation will improve compliance with RCRA. However, the policy has been intended to complement, not replace, DLA actions. Installation commanders have continued to have responsibility and authority to act on their own behalf to comply with RCRA if DLA cannot provide support, as pointed

Now on pp. 37-43.

out in the response to Finding O. Dual capability by the Services and DLA in contracting and storage provides DoD with the necessary flexibility to manage hazardous waste. This capability does not duplicate efforts, resources and contracts, but rather allows timely hazardous waste storage and disposal, as also discussed in the DoD response to Finding M. The transition from disposal to recycling and the use of any subsequent savings will be accomplished in a program, described in the response to Recommendation 4, that is independent of Service and DLA interaction on disposal.

- **FINDING L: Possible Delay In DPDS Storage Facility Construction.** GAO observed that DPDS plans called for the construction of 143 storage facilities at its property disposal offices located on DoD installations throughout the United States. GAO found that, as of February 28, 1985, 12 facilities were completed, 13 were under construction, 40 were in the design phase, and the remaining 78 were either in preliminary development or not being worked on. GAO also found that, although the DPDS plan was to complete construction of the 143 facilities by 1989, 79 of them may not be completed as scheduled. For 31 facilities in preliminary development, GAO found that DPDS is reevaluating their size to reduce construction costs based on DoD establishing a shorter length of time for waste storage; however, DPDS engineers stated the reevaluation would cause several months delay. For 48 facilities where design had not yet begun, GAO found that DLA directed DPDS to incorporate additional design features to increase the safety of workers and to reduce the likelihood that waste would be released into the environment. GAO also found that DPDS' impact analysis of the design changes showed the resulting increased costs would require congressional authorization and final construction would be delayed 2 to 3 years. (pp. 39-42, GAO Draft Report)

Now on pp. 44-47.

DOD RESPONSE: Concur. As additional information and clarification, the original identification, planning and programming for conforming storage facilities to be built was based on data collected and conditions in existence in the 1981-1983 time frame. There have been continual modifications to the program based on the receipt of new data on quantity of waste generated, improvements and changes in the design criteria to ensure the safety and health of both DLA employees and the surrounding community, problems with siting, new regulatory requirements, and other factors. As a result of these fluctuations, DLA has undertaken the initiatives described in GAO Finding N and amplified in the DoD response. If these initiatives are

approved by the Congress, DLA expects to be able to fund construction during the FY 1987- FY 1989 time frame using military construction funds and incorporating prudent safeguards for the protection of people and the environment.

- **FINDING M: The Services Are Building Storage Rather Than Waiting For DPDS Facilities.** GAO found that, because DPDS has constructed few storage facilities, many installations have constructed or plan to construct their own storage facilities and upgrade existing facilities to comply with RCRA requirements. GAO found that, in 1984, according to data reported to DoD, installations transferred over 32,000 tons of waste to DPDS for disposal; however, the installations retained physical custody for over 21,000 tons, or 67 percent, because the DPDS property disposal offices had insufficient storage facilities. As a result, GAO found that Army, Navy, and Air Force installations have upgraded facilities, constructed new facilities and plan more in the near future so that DPDS waste can be stored in accordance with RCRA requirements. GAO concluded that DPDS efforts to design and build hazardous waste storage facilities has not been successful in meeting the needs of the DoD installations. GAO further concluded that this has resulted in some installations either being in violation of RCRA requirements or having to build their own storage facilities to avoid violations. (pp. 42-47, GAO Draft Report)

Now on pp. 47-52.

DOD RESPONSE: Partially Concur. The DoD does not concur with the implication that funds are being expended unnecessarily on duplicate storage facilities. As discussed in the DoD responses to Findings K and O, and Recommendation 2, the resources expended on component storage facilities have been appropriate. These efforts do not duplicate present or planned future compliance efforts. Some of these facilities are for the temporary storage of hazardous waste not within the disposal responsibility of DLA, i.e., munitions. In those cases where similar hazardous waste is to be held, it is only for the limited generations of the installation, and the construction can be done without experiencing the regulatory delays applicable to the DLA facility. For example, an existing facility can often be upgraded within the scope of the existing RCRA permit. The DLA facility, on the other hand, being new and larger to accommodate off-post generations, requires a RCRA permit before construction to satisfy all EPA and state restraints under RCRA. In instances where an installation is constructing storage facilities to satisfy DLA requirements, the construction is being coordinated to ensure the facilities are not duplicated.

- **FINDING N: DLA/DPDS Proposed Actions.** GAO reported that DLA and DPDS officials have initiated several actions that these officials believe will enable DPDS to reduce the time needed to construct storage facilities. According to GAO, to speed up construction, the Army Corps of Engineers will be used to develop and construct 28 facilities. In addition, GAO reported that the Corps of Engineers is developing a standardized storage facility design for DPDS. According to GAO, DLA officials hope to work out an interim agreement with EPA whereby DPDS could quickly obtain EPA/state agency approval to construct facilities that are consistent with the standardized design. DPDS officials told GAO such an agreement could significantly reduce the time between design and beginning of construction. (p. 46, GAO Draft Report)

DOD RESPONSE: Concur. In addition to the initiatives described by the GAO, DLA is also undertaking a number of other important initiatives to expedite construction. These include: issuance of siting criteria guidance to aid in the comparison of alternatives and selection of sites; development of a prototype RCRA permit in conjunction with regulatory authorities to speed the process of issuing RCRA permits; development of a legislative proposal providing block funding of the DLA hazardous waste facility construction program, which can be utilized under a procedure more flexible and expeditious than routine military construction programming; and development of a second legislative proposal to allow construction of storage facilities prior to issuance of the RCRA permit. The two DLA legislative proposals are particularly critical to DLA's schedule for constructing facilities in the FY 1987- FY 1989 time frame and, if approved, will enable DLA to accomplish the program as planned. Accordingly, DLA schedules are dependent on favorable action by the Congress.

- **FINDING O: DoD Actions.** According to GAO, the Director of Environmental Policy stated that a March 1985 proposed revised policy for the management of hazardous waste should expedite construction of hazardous waste storage facilities. Under this proposal, GAO reported that the Director stated the installation commander, rather than DLA, will be responsible for the development, construction and operation of any storage facility, as well as for determining the need for such facilities. GAO observed that DoD issued a policy memorandum on July 5, 1985, which generally adopts the proposed policy as explained by the Director. GAO also observed that the memorandum is a part of DoD's final process in adopting policy statements. GAO concluded that

Now on p. 51.

Now on p. 52.

the DoD policy change, when finalized and implemented, will expedite construction of hazardous waste storage facilities by giving the installation commander responsibility to develop and construct such facilities. GAO further concluded that this change, coupled with the installation commander being given authority to dispose of waste (as discussed in Finding K), may also result in smaller and fewer storage facilities being constructed. For example, if an installation can dispose of its hazardous waste in 90 days or less, RCRA regulations for the design of storage facilities are not applicable, according to GAO; as a result, the installations could opt not to build such a facility. (pp. 47-48, GAO Draft Report)

DOD RESPONSE: Partially Concur. As discussed in the DoD response to Recommendation 2, the DoD concurs that the July 5, 1985 policy proposal, as revised after Service Secretariat reviews, should be finalized and that its implementation should improve compliance with RCRA. However, installation commanders have continued to have responsibility for complying with RCRA requirements to which they are subject and have continued to have authority to construct storage facilities as necessary, should the DLA be unable to satisfy their needs (as discussed in the response to Finding M). Responsibility and authority for providing hazardous waste storage facilities and disposal services to comply with RCRA continue to be vested in the DLA, as the primary manager, to ensure consistency in the overall DoD program implementation. Dual capability by the Services and DLA in contracting and storage provides DoD with the necessary flexibility to manage hazardous waste. This capability does not duplicate efforts, resources and contracts, but rather allows timely hazardous waste storage and disposal, as also discussed in the DoD responses to Findings K and M. It should be noted that actual storage needs will be affected by disposal site availability constraints imposed by implementation of the Hazardous and Solid Waste Amendments of 1984. For example, the Amendments prohibit the land disposal of certain wastes; thus, other disposal methods are needed, e.g. incineration, and these disposal facilities may or may not be adequately available. Thus, the 90 day generator exemption would not be useful if lack of disposal sites caused storage to exceed the 90 day time limit. Therefore, the faster-to-construct, non-permit facilities may not improve compliance and more, rather than fewer, facilities could be necessary.

- **FINDING P: Greater Use Can Be Made Of Industrial Waste Treatment Plants.** GAO found that 7 industrial waste

treatment plants at installations it visited were being used at rates ranging from 33 to 88 percent of their capacity to reduce hazardous wastes from water. GAO further found that 4 of these 7 installations contracted for disposal of their wastes in 1984, at a cost of about \$276,000, but the contracted wastes were similar to those the treatment plants were treating. GAO also found two recent studies at DoD installations showing that certain types of hazardous waste were being contracted for disposal when they could be treated at nearby installations' industrial waste treatment plants at a savings to DoD. GAO also reported examples that showed some capital expenditures may be required before additional quantities of wastes can be treated, but that the future savings justify the additional costs. GAO concluded that, although some installations have reduced their volume of waste, more can be done to avoid land disposal of hazardous waste--such as using excess treatment plant capacity to handle additional quantities of waste from the same or nearby installations. To minimize future program costs, GAO further concluded that existing and planned treatment facilities should be used to the greatest extent possible, regardless of ownership. According to GAO, this would require that the Services establish inter-Service agreements to promote inter-Service coordination and cooperation at all levels of management, especially among their installations in the same geographical area. (pp. 50-55, and p. 63, GAO Draft Report)

Now on pp. 55-58 and 63.

DOD RESPONSE: Concur. The Environmental Policy Directorate (OASD) has two studies underway that address greater use of industrial waste treatment plants. One study is looking at regional treatment feasibility and pilot demonstrations. The other study is looking at single installation treatment. Results are expected by December 1986.

- **FINDING Q: DoD Used Solvents Elimination Program.** GAO observed that DoD established a Used Solvents Elimination (USE) program in January 1984, to eliminate the disposal of solvents by recovering and recycling them. GAO also observed that DoD initiated the USE program because a DoD Inspector General report and a DPDS study showed that solvent recycling could result in substantial savings through cost avoidance for new solvents and for disposal of used solvents. GAO reported that the USE program goal to eliminate the land disposal of solvents is important because RCRA, as amended in 1984, generally bans the land disposal of solvents in late 1986. GAO found that the Services started to take various actions to implement the USE program in July 1984, and each of the Services plans to have its

program fully operational at the larger generators before October 1, 1986. GAO also found, however, that 4 of 14 installations it visited actually recycled solvents, but these efforts were underway before the USE program was established. GAO further found 13 installations disposing of an estimated 401,000 gallons of waste solvents annually that could be recycled, although in each instance the annual volume exceeds the minimum amount the DoD considers economically feasible to recycle. GAO concluded that none of the installations it visited has increased the amount of solvent recycling as a result of the USE program. GAO further concluded that a strictly enforced ban on land disposal of solvents, coupled with less than complete recycling of solvents, may cause DoD installations to temporarily store large quantities of solvents pending recycling. GAO concluded that this situation could pose a serious threat to the environment because, as noted in its previous findings, the installations frequently lack adequately-designed storage facilities for hazardous waste. (pp. 55-60, and 62-63, GAO Draft Report)

Now on pp. 58-61, 62-63.

DOD RESPONSE: Partially Concur. DoD agrees that, Department wide, the USE program has had a slower than desired start. Those programs begun before USE, however, are examples of innovative compliance that can be used in promoting further recycling under the formal USE program. They are not examples of any implementation inadequacy. DoD also does not share GAO's concern for solvent storage problems, at least not as much as for other hazardous waste, because solvent recyclers are rapidly developing capability to handle such waste.

- **FINDING R: DoD Proposes Eliminating The Disposal Of Untreated Hazardous Waste By 1992.** GAO observed that DoD issued a draft policy statement on March 11, 1985, establishing a DoD goal of eliminating the disposal of untreated hazardous waste by 1992. According to the draft policy statement, this goal is to be attained through rigorous program waste minimization and emphasis on treatment and recycling, rather than disposal. According to GAO, the DoD Director of Environmental Policy stated that although DoD has not developed a detailed plan with specific programs to achieve the 1992 goal, the draft policy's objectives are a driving force behind many DoD initiatives, such as greater use of industrial waste treatment plants and the USE program. GAO also reported that DoD has a project on industrial process modification which, according to the Director, has waste minimization as its objective. GAO also observed that DoD issued a policy memorandum on July 5,

Now on pp. 61-62.

1985, which (1) requires installation commanders to prepare and implement a plan for reducing the generation of hazardous waste and (2) cites DoD's goal to eliminate disposal of untreated waste by 1992. GAO concluded that this requirement will increase the visibility of programs aimed at reducing the volume of waste; thus, greater emphasis will be placed on such programs by installation commanders. GAO further concluded that such additional attention should also speed up the operational status of the USE program and process changes. (pp. 60-63, GAO Draft Report)

DOD RESPONSE: Concur. The Environmental Policy Directorate (OASD) July 1985 policy proposal, as amended, will be implemented through a directive being developed by a committee of representatives from the Services and DLA. The directive will include the requirement for developing minimization plans. The goal for issuing the directive is July 1986.

RECOMMENDATIONS

- **RECOMMENDATION 1:** GAO recommended that the Secretary of Defense finalize and implement the policy change which gives installation commanders the authority and responsibility for the disposal of hazardous waste. (p. 37, GAO Draft Report)

See comment 1.

DOD RESPONSE: Partially Concur. See response to Recommendation 2.

- **RECOMMENDATION 2:** GAO recommended that the Secretary of Defense finalize and implement a policy change which gives installation commanders the authority and responsibility for the development, construction, and operation of any necessary hazardous waste storage facilities. (p. 48, GAO Draft Report)

See comment 1.

DOD RESPONSE: Partially Concur. DoD concurs with the need to issue hazardous waste management guidance, but notes that the proposed policy described to GAO during its investigation is being updated. The July 5, 1985 proposed policy was thoroughly reviewed by Service Secretariats in consultation with the Joint Logistics Chiefs who head the DoD commands that generate 70 percent of DoD hazardous waste. This review determined that DLA should continue to provide a centrally managed hazardous waste disposal

service. The review also indentified several issues that needed to be resolved, including: (1) whether funds for hazardous waste disposal should be allocated directly to DLA or to the individual Services; (2) whether waste management and regulatory response would be more efficient, and accountability clearer, if DLA's interface with the regulatory requirement were conducted without a host installation as intermediary (e.g. should DLA officials sign permits as both owner and operator of a DLA storage facility, rather than an installation official signing as owner); (3) how to continue to expedite storage facility planning, programming and construction; (4) which entity is primarily responsible for specific special wastes, such as munitions and high volume wastes, i.e., sludges; (5) what data is needed to support annual budget requests for waste disposal funds and how should such data be collected; (6) how to continue to improve disposal contracting to improve service and reduce risk of off-site liability; and (7) how to implement the broad concept of minimization, which includes various efforts to reduce the amount of waste requiring disposal. The review further concluded that resolution of these issues should be included in a formal DoD directive, approved by appropriate offices to ensure concurrence and facilitate execution of hazardous waste management responsibility for the foreseeable future. Working groups of Service and DLA representatives are addressing each of these issues for inclusion in the directive. The goal for issuing the directive is July, 1986.

Under current DoD policy and directive, the Services and their installation commanders are "responsible to ensure compliance with all RCRA requirements for the installation." Existing policy also instructs the Services and DLA to budget for resources to execute their responsibilities. The current process of establishing guidance through a formal directive, coupled with comprehensive minimization plans (see response to Recommendation 4), should result in a compliance situation superior to the one that the DoD was able to predict and describe during GAO's audit.

- **RECOMMENDATION 3:** GAO recommended that the Secretary of Defense instruct the Assistant Secretary of Defense (Acquisition and Logistics) to issue a directive requiring maximum possible utilization of of industrial waste treatment plants, devise procedures to assist in the coordination between all DoD elements within geographic proximity of such plants, and incorporate information on these plants in the management information system. (p. 64, GAO Draft Report)

See comment 1.

DOD RESPONSE: Concur. The requirement to maximize utilization of industrial waste treatment plants will be included in the directive, described in the response to Recommendation 2, being developed. Moreover, the investigation of maximum possible utilization of industrial waste treatment plants is underway by studies sponsored by OASD Defense Environmental Leadership Project (DELP) and is also being considered individually by the Services and DLA. The DELP effort includes feasibility studies and pilot studies of actual operation. The studies' initial results and identification of a pilot site for demonstration of regional treatment feasibility are expected about June 1986. Monitoring requirements will be addressed within the studies, but site specific oversight at the OASD level is not necessary as lower echelons are responsible for compliance and can effect required action.

- **RECOMMENDATION 4:** GAO recommended that the Secretary of Defense finalize and implement the policy change requiring installations to develop and implement plans for reducing the volume of waste requiring disposal. The policy statement should include a requirement that these plans, at a minimum, include specific goals for various categories of waste, actions required to meet the goals, major milestone dates, delegation of responsibilities to individual installation components, and reporting procedures. (p. 64, GAO Draft Report)

See comment 1.

DOD RESPONSE: Concur. The requirement for minimization planning will be included in the DoD directive discussed in the response to Recommendation 2. Moreover, implementation of the concept has already begun. The chiefs of the Department of Defense logistics facilities have embraced the concept and directed their staffs to develop planning guidance that covers the goals suggested by GAO. This guidance is being formulated so as to be largely adoptable by any DoD component. With the Joint Logistics Chiefs showing the way, the direction to minimize should achieve the desired results and efficiencies as the Services implement through their major commands.

Appendix IV
Comments From the Assistant Secretary of
Defense (Acquisition and Logistics)

The following is GAO's comment on the Assistant Secretary of Defense's letter dated January 10, 1986.

GAO Comment

1. Subsequent to the issuance of a draft of this report, DOD issued the new policy on hazardous waste management that we had proposed in the draft.

Comments From the Assistant Administrator for Policy, Planning and Evaluation, Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 18 1985

OFFICE OF
POLICY, PLANNING AND EVALUATION

Mr. J. Dexter Peach
Director
Resources, Community, and Economic
Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

On November 14, 1985, the General Accounting Office (GAO) sent the Environmental Protection Agency (EPA) a draft report for review and comment. The report is entitled "Hazardous Waste -- New Initiatives Needed At Military Bases In The United States". EPA, in accordance with Public Law 96-223, has reviewed the report and has prepared the following statement in response to the report.

We have no direct comment to make on the substance of the report, however, we would like to urge the Department of Defense (DOD) to consider the potential implications of the new small quantity generator requirements on their waste management activities. While the report only addresses existing practices and problems, these new regulations may require DOD to manage a significantly larger quantity of waste as hazardous.

We appreciate the opportunity to comment on the draft report.

Sincerely yours,

A handwritten signature in cursive script that reads "Milton Russell".

Milton Russell
Assistant Administrator
for Policy, Planning and Evaluation

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